Quick Setup Guide

ASA 312® Network Information Computer®

Digital Lightwave

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

GENERAL SAFETY GUIDELINES

The following safety precautions are provided to avoid injury and prevent damage to this product or any products connected to it during normal operation. Only qualified maintenance personnel should perform service procedures.

Use Proper Power Cord To avoid fire hazard, use only the power cord specified for this instrument.

Avoid Electric Overload This unit is designed to be powered from 90ñ132 and 180ñ260 VAC, 47-63 Hz, 60 watts. To avoid electric shock, fire hazard, or damage to the instrument, do not apply a higher voltage.

Ground the Instrument The ASA 312 is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the instrument, ensure that the product is properlygrounded.

Do Not Operate In Hazardous Conditions To avoid injury or fire hazard, do not operate this instrument in wet, damp, or other hazardous condition. Do not operate this instrument in an explosive atmosphere.

Wear Eye Protection There is the potential danger from the laser light source and certain precautions should be followed. Users should never stare into unterminated connectors or broken fibers. In addition, fiber cables and interfaces should always be handled as if they were emitting laser light. Always leave protective covers on optical connectors to prevent damage and prevent laser emissions.

CAUTION Use of controls or adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

Replacing the Battery The ASA 312 uses a lithium battery located in the service access area not accessible to customers. To avoid damaging the unit, do not under any circumstances attempt to replace the lithium battery. Return the unit to Digital Lightwave, Inc. for battery replacement.

WARNING Danger of explosion exists if the battery is replaced incorrectly. Do not, under any circumstances, attempt to replace the lithium battery.

Copyright © 1999-2000 Digital Lightwave, Inc.
All rights reserved. This publication, or parts thereof, may not be reproduced in any form, by any method, for any purpose. For conditions of use and permission to use these materials for publication in other than the English language, contact Digital Lightwave, Inc.
Digital Lightwave, Inc. reserves the right to revise and improve its product as it sees fit. This publication describes the state of this product at the time of its publication and may not represent the product at all times in the future.

Technical Support
Technical Support is available by calling toll free
1.877.929.HELP (4357) or 1.800.548.9283.

Digital Lightwave, Inc.
15550 Lightwave Drive • Clearwater , Florida 33760 United States
T: 727.442.6677 • F: 727.442.5660
Toll Free: 800.548.9283 or 877.275.3445
info@lightwave.com • http://www.lightwave.com

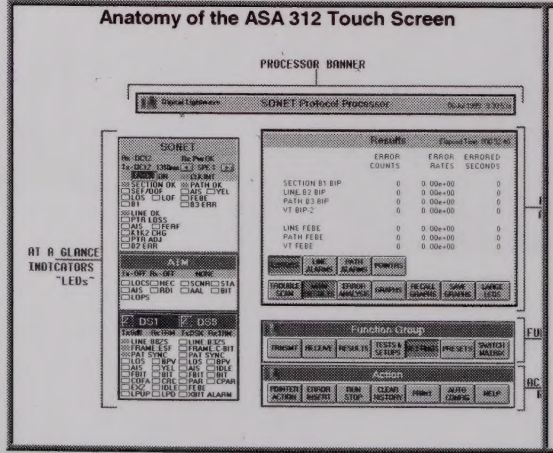
How To Use	General Info	Printing	SONET	DS3	DS1	ATM	E1
Getting Started Card-1	Software Version Card-2	Selection Card-9	DS3 Mapped Card-12	Looped (Test Pattern) Card-17	Looped (Test Pattern) Card-22	unction Settings Card-27	75-to-120 Ohm Adapter Interface Card-35
Glossary (Back of Guide)	Signal Level Card-3	Saving Results Card-10	VT1.5 Mapped Card-13	Monitoring (Live Traffic) Card-18	Monitoring (Live Traffic) Card-23	ATM Over OC3c Card-28	Looped (Test Pattern) Card-36
	Error Insertion Card-4	Print Saved Results Card-11	STS-1 Mapped Card-14	M-13 Mapped Card-19	Loop Codes Card-24	ATM Over OC12c Card-29	Monitoring (Live Traffic) Card-37
	Saving a Setup Card-5		OC3c/OC12c (Concatenated) Card-15	FEAC Codes Card-20	DS0 Scan Monitor Card-25	Add/Edit 1 VCC Card-30	E1 M13 Mapped Card-38
	Recall a Setup Card-6		Switch to Protect Card-16	Zoom Mode Card-21	Zoom Mode Card-26	Add VCCs Card-31	
	Timed Test Card-7					VCC Scan/Add Card-32	
	File Transfer Card-8					Errors/Alarms Card-33	
						Q.O.S. (Delay) Card-34	

Quick Setup

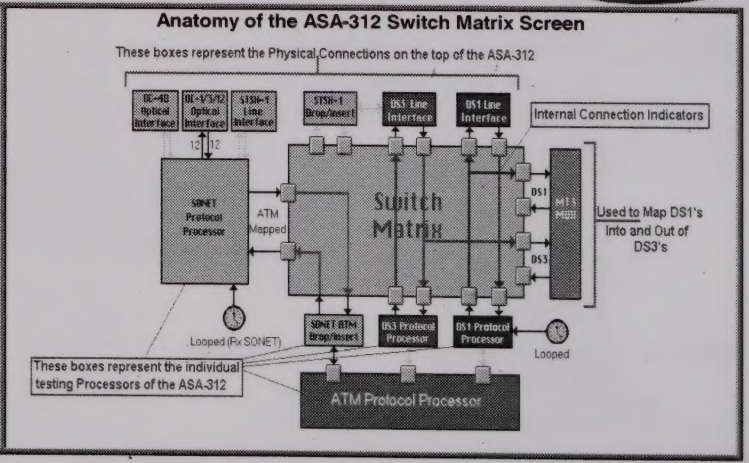
Document No. CO 003179B Rev B

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

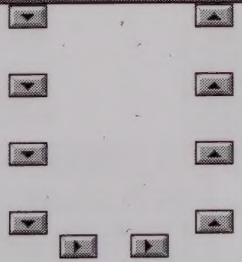
Anatomy of the ASA 312 Touch Screen



Anatomy of the ASA-312 Switch Matrix Screen

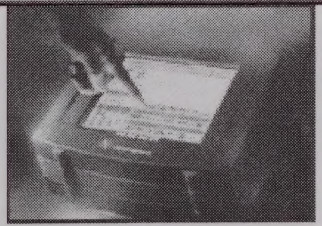


1. Read a selected card. Direction of flow is down, and then across.



Additional information will be on the back side of the previous card to the left.

2. Press each button on your test set. Releasing your finger will activate the button.



Button Types:

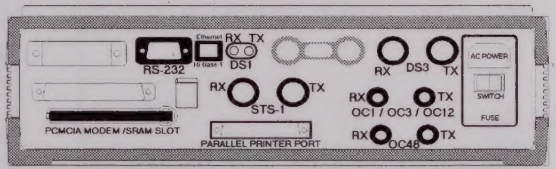
Available -

Pressed -

Unavailable -

3. Connect any appropriate cables to the top of the test set.

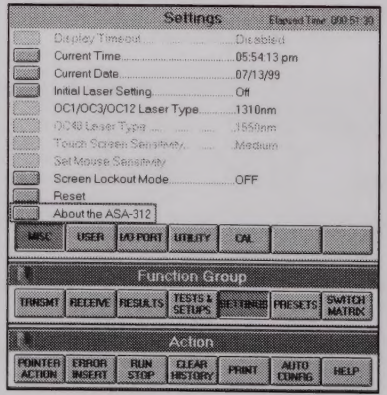
The Top Side of the ASA 312



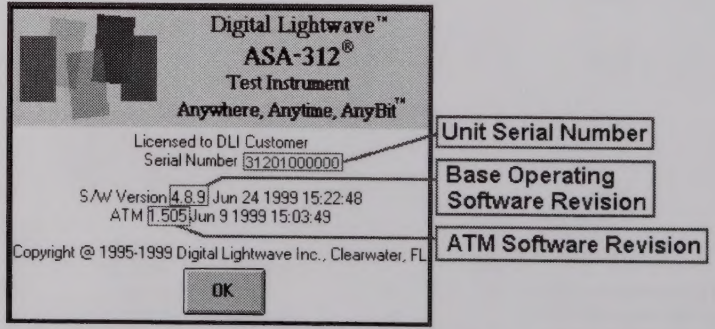
Note:
For more detailed information, refer to *the ASA 312 and RAM User's Guide.*

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Miscellaneous Screen



"About the ASA-312" Screen



1. Select

SETTINGS

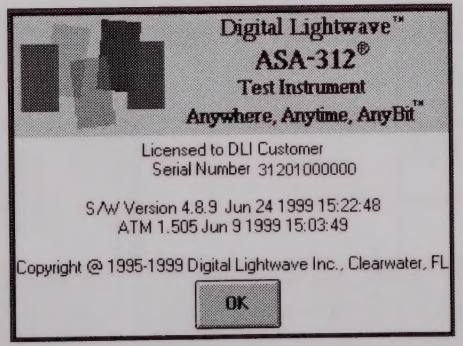
MISC

About the ASA-312

OK

Additional Info

The "About the ASA 312" Screen



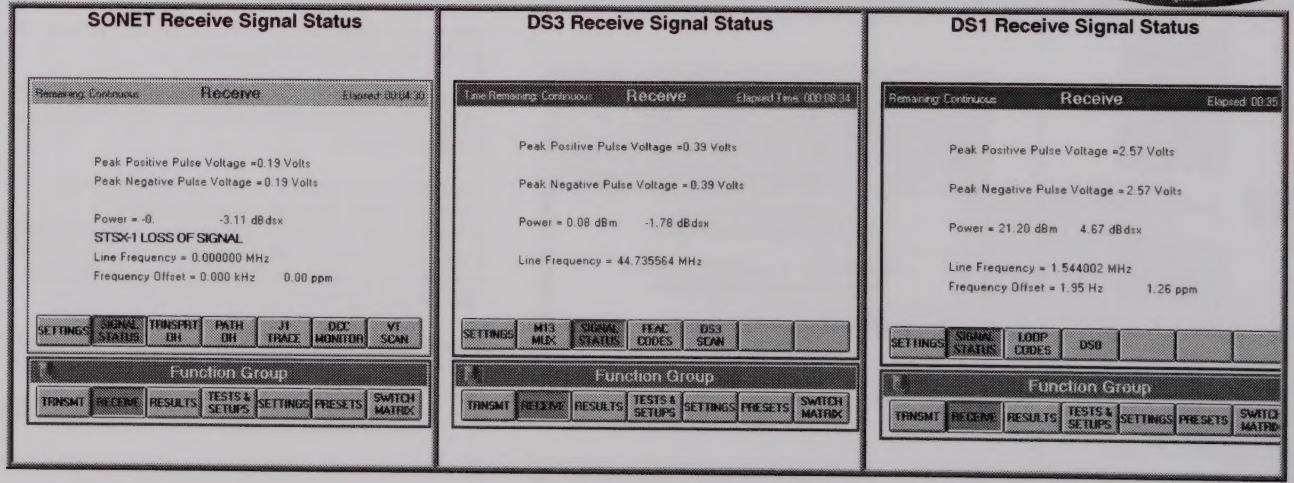
The ASA 312 test set operates similar to a portable PC running on a DOS-based platform.

The unit's operating software has two parts: **Base** and **ATM** (if the ATM feature is installed). "S / W" version is the *Base* version.

The ASA 312 software can be replaced with more current releases that may contain operational improvements and added functionality. The *Quick Setup Guide* will attempt to reflect the latest software version; however, there may be slight operational differences between your test set and the *Quick Setup Guide*.

Consult Digital Lightwave's Customer Technical Support for information regarding current software versions and upgrading procedures.

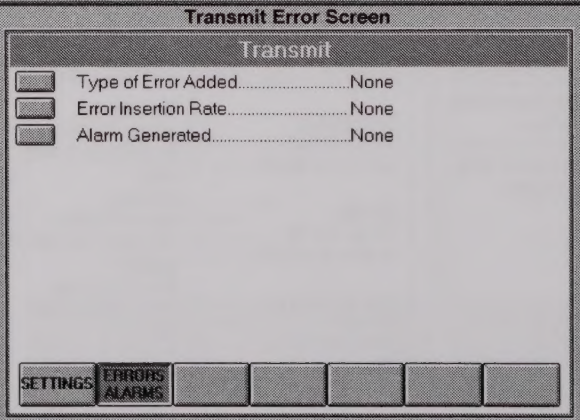
DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



1. Select a processor.	2. Press	STS-1 Specs	OC-1, 3, 12 Specs	OC-48 Specs	DS3 Specs	DS1 Specs
SONET -or- DS3 -or- DS1 **Note:** *The test set must have a "signal source" connected.* **Additional Info**	Under Function Group, RECEIVE Then SIGNAL STATUS	Peak positive and negative voltage range: ± 0.31Vp to ± 1.2Vp Frequency Range: 51.84 MHz, ± 50 ppm	*(Receive)* Optical Power 0 to -26 dBm, ± 1.5 dB Line Frequency Range: N x 51.84 MHz, ± 50 ppm	*(Receive)* Optical Power 0 to -26 dBm, ± 1.5 dBm Line Frequency Range: N x 51.84 MHz, (2,488.32 MHz) ± 50 ppm	*(Receive)* Peak positive and negative voltage range: ± 0.31Vp to ±1.2Vp Terminated + 6 to -26 dB relative to DSX3 Monitor -15 to -30 dB relative to DSX3 Line Frequency Range: 44.736 MHz, ±200 ppm	*(Receive)* Peak positive and negative voltage range ±0.1Vp to ±7Vp Terminated + 6 to -30 dBdsx 22.532 to -13.468 dBm Monitor 0 to -36 dBdsx 16.532to -19.468 dBm Bridge 0 to -36 dBdsx 16.532 to -19.468 dBm Line Frequency Range: 1.544 MHz, ±200ppm

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

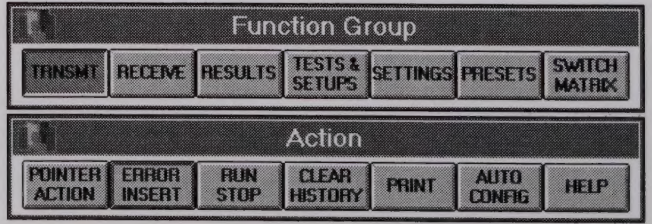
Transmit Error Screen



Notes:

In order to perform Error Insertion, the ASA 312 must currently be running an "error-free" test.

This instruction card assumes that the ASA 312 is configured to perform the desired test, and is either looped on itself, connected to a circuit that is looped somewhere, or is performing an "end-to-end" test with a compatible test set.



Note

This instruction card assumes that the ASA 312 is configured to perform the desired test, and is either looped on itself, connected to a circuit that is looped somewhere, or is performing an "end-to-end" test with a compatible test set.

Additional Info

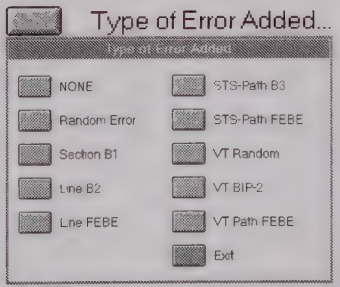
1. Select Proc.

SONET
-or-
DS3
-or-
DS1
-or-
E1

TRNSMT

ERRORS ALARMS

2. Select Error Type.



Note: The above selection is only an example. It has choices that relate to SONET; however, the selected processor will have choices specific to that processor.

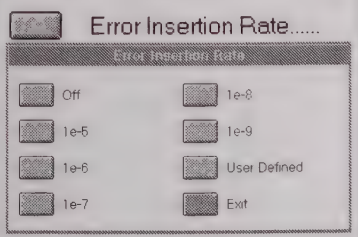
3. Single Errors

ERROR INSERT

(Located in the Action row on the bottom of the screen.)

Important Note: Major setting changes such as Mapping will reset the error type back to "none." When the error type is set to "none," this button will not function.

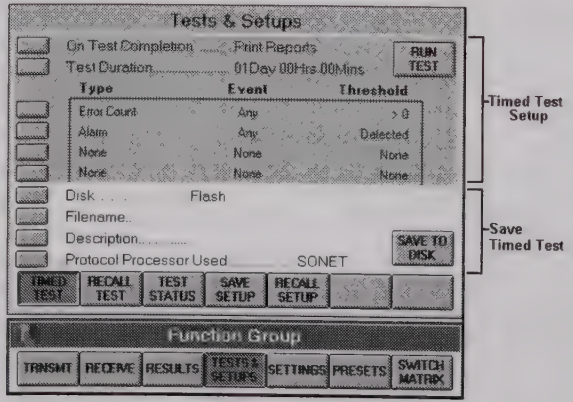
4. Automatic Errors



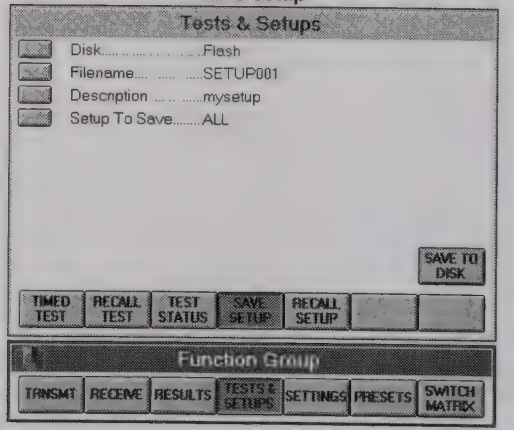
Note:
The above selection is only an example. It has choices that relate to SONET; however, the selected processor will have choices specific to that processor. Alarm types may have different rate choices as well.

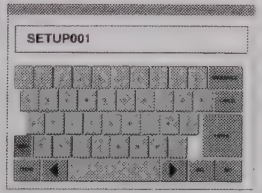
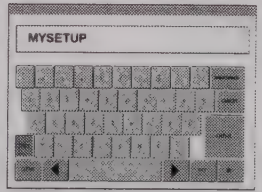
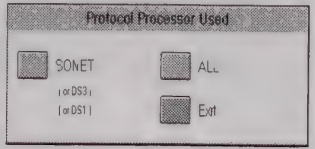
DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Test & Setups Screen [Save/Recall Setup Section]

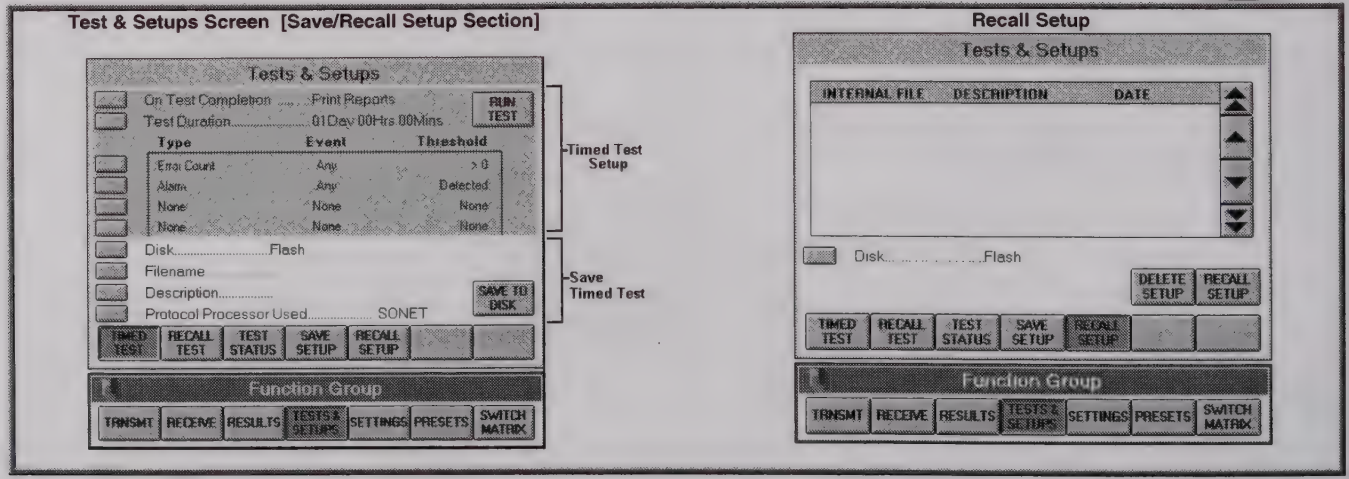


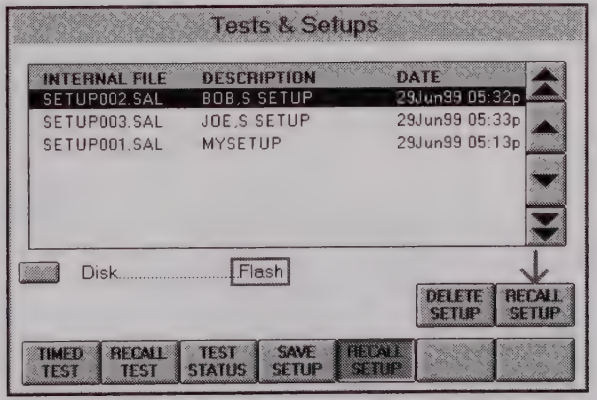
Save Setup



1. Configure unit.	2. Press	3. Select disk and name file.	4. Enter a file description.	5. Choose type of setup.	6. Save it.
Note: Ensure all settings in the ASA 312 are configured for the type of test setup that you would like to save for future use. **Additional Info**	TESTS & SETUPS SAVE SETUP	Disk.....Flash Set to "Flash." Filename.... Enter a file name. (8 characters maximum) 	Description... (optional) Enter a description of the file (25 characters maximum). 	Setup To Save.. You can choose to save the setup of the current processor or ALL of the setups of the test set. 	SAVE TO DISK Card

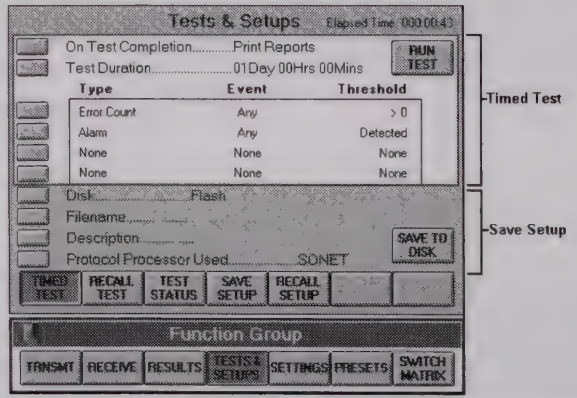
Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



1. Select	2. Select the file by name and description.	3. Choose type of setup.
TESTS & SETUPS RECALL SETUP Additional Info		Press RECALL SETUP (Button located to the far right.) (Wait for completion.) Processing ... Please wait

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Test & Setups Screen [Save/Recall Setup Section]



1. Select printer.

Printer Port.....
Printer Selection

See the *Printing* section for more information.

Important Note: Printing operation should be successfully tested **before** performing a timed test in order to verify printer settings and cabling.

Additional Info

2. Select proc.

SONET
-or-
DS3
-or-
DS1
-or-
E1

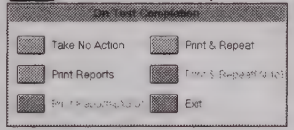
3. Press

TESTS & SETUPS

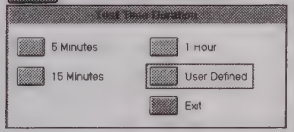
TIMED TEST

4. Press

On Test Completion...

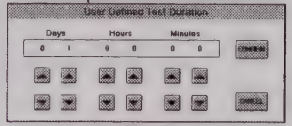


Test Duration.....



5. Select

The User Defined screen allows for a more specific time duration.



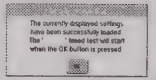
Press
CONFIRM

Select up to four traps.
Chose **Type**, **Event**, and **Threshold** for each trap.

Type	Event	Threshold
Error Count	Any	> 0
Alarm	Any	Detected

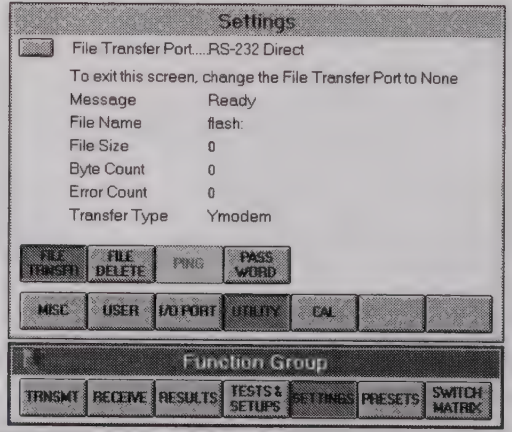
6. Run the test.

RUN TEST



Press
OK

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



Important Note:

Once a port is selected, other buttons will **not** respond until the port is restored to "None."

Additional Required Settings:

For *Direct* connect, check [I/O Port] / [Serial] / [Baud Rate].

For *External* modem, check [I/O Port] / [Serial] / [Baud Rate]. Make sure the modem is powered on and connected to the port *before* selecting the port.

For *PCMCIA* modem, check [I/O Port] / [PCMCIA] / [Baud Rate]. Insert the card into the slot *before* selecting the port (listen for the "beep beep" when inserting it).

For *LAN* connection, check [I/O Port] / [Ethernet] / [IP Address] (normal modular network cable required or crossover if connecting directly to a PC NIC card).

1. Notes

File Transfer: A utility function of the ASA 312 that allows files to be transferred into or out of the unit. The standard file transfer protocol, "Y-Modem", is used.

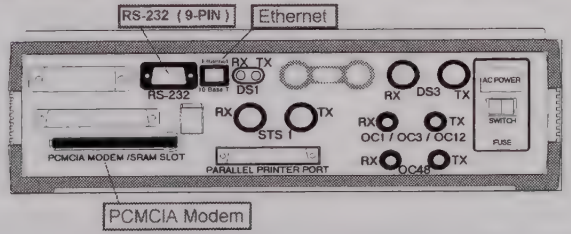
This is the primary method for upgrading the operational software of the ASA 312.

Additional Info

2. Connect the port.

You can connect the ASA 312 to:

- **PC Direct:** Use the RS232 port ("null modem" cable or adapter required).
- **External Modem:** Use the RS232 port (normal 9-pin to 25-pin modem cable required).
- **Internal Modem:** Use the PCMCIA slot (PCMCIA modem required).
- **LAN (**10Base/T): Use the Ethernet port (normal modular network cable required, or crossover if connecting directly to PC NIC card).



3. Select the Transfer Port.

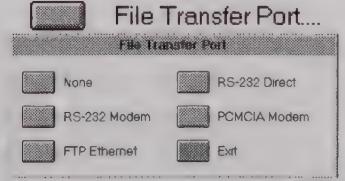
From any processor screen, press:

SETTINGS

UTILITY

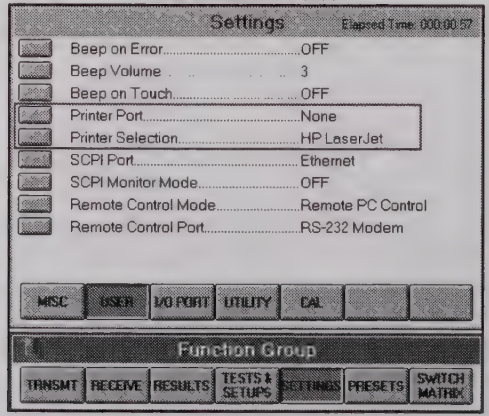
FILE TRNSFR

File Transfer Port....

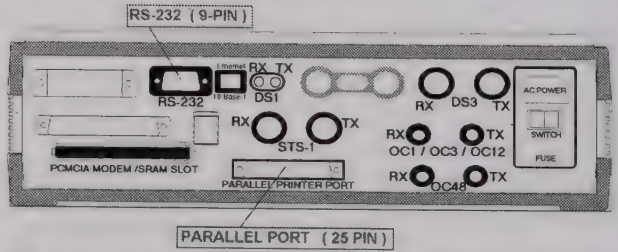


DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

User Selection Screen



Printer Ports



Note: Not all ASA 312s have a parallel port.

1. For RS-232, select baud rate.

If RS-232 is selected, you must choose baud rate, etc.

SETTINGS

I/O PORT

SERIAL

- Baud Rate ..... 9600 Baud
- Parity ..... None
- Stop Bits 1
- Data Bits ..... 8 Bit Data

Make sure your printer's rate settings match.

Additional Info

2. Select printer port.

SETTINGS

USER

Printer Port.....

Printer Port

RS-232 | Parallel

File | None

Exit

3. Select type of printer.

Printer Selection...

Printer Selection

HP LaserJet | ASCII Printer

HP ThinkJet | Epson FX

IBM ProPrinter | Seiko DPU-411

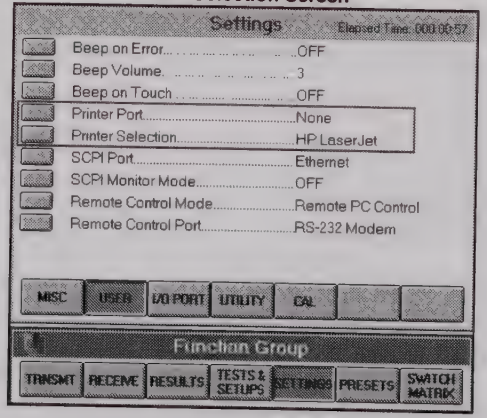
Exit

Select ASCII printer if:

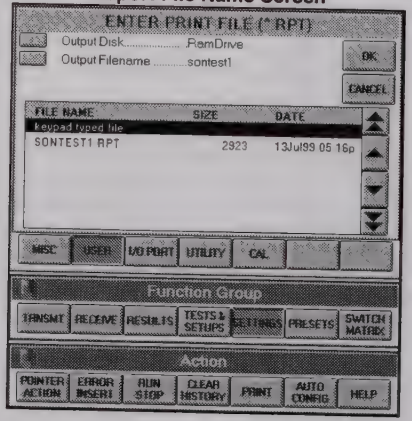
- Your printer model is not listed.
- You selected "file" as your printer port.

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

User Selection Screen



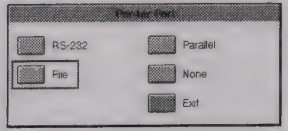
Report File Name Screen



1. Select File as printer port.

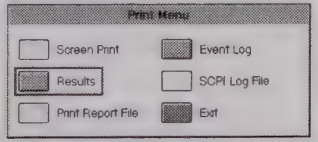
Note:
Requires operating software version 4.8.4 (3.8.4) or higher.

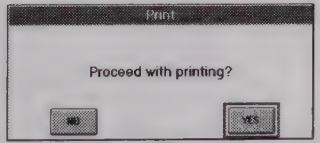
Printer Port.....



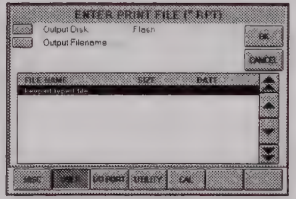
Additional Info

2. Print.

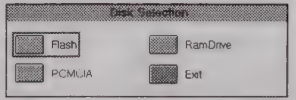




3. Select Flash as Output Disk.



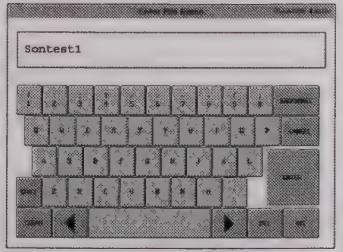
Output Disk.....Flash



4. Name the file.

Output Filename....

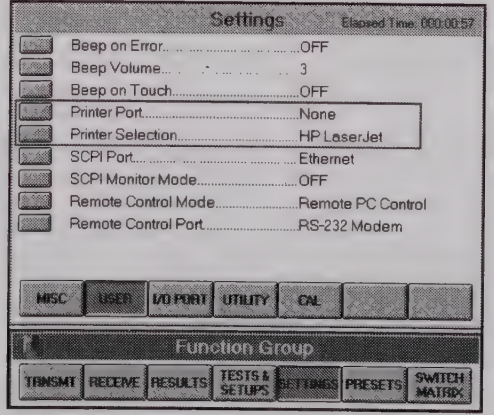
Using the touch screen, enter the file name and press **Enter**.



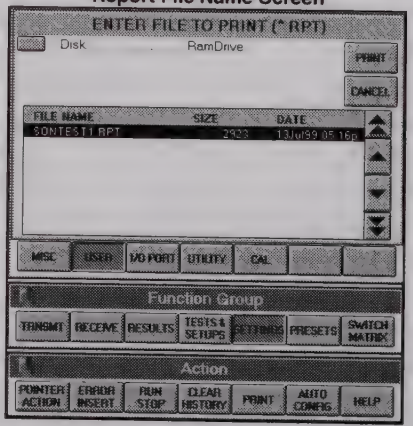
Press the **OK** button (located in the upper right) to save the file.

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

User Selection Screen



Report File Name Screen



1. Select printer port and printer.

Note:
Requires operating software version 4.8.4 (3.8.4) or higher.

SETTINGS

USER

Printer Port.....

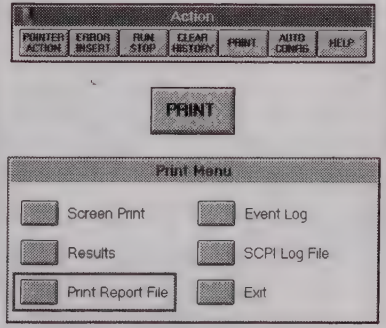
Do **not** select "File."

Printer Selection...

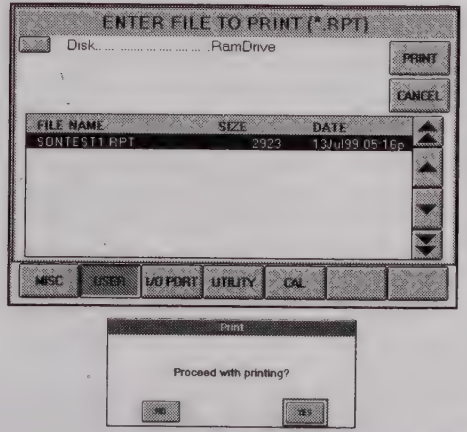
See the *Printing* section for more details.

Additional Info

2. Print Report File (Results).

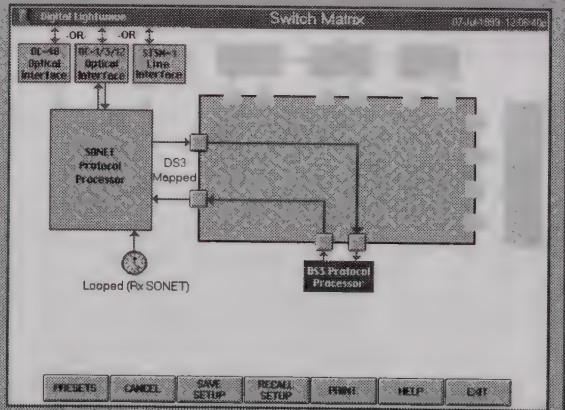


3. Select file.

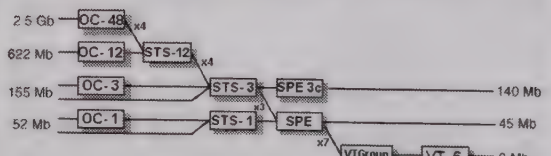


DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

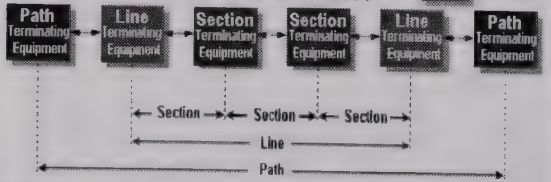
This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



SONET MULTIPLEXING HIERARCHY



SONET SYSTEM HIERARCHY



SONET

DS3

Mapped

Looped | Looped | Function | 75-to-120 Ohm

Quick Setup

1. Reset to defaults.

SONET

(OC-48, OC-12, OC-3, STSX-1)

SETTINGS

MISC

Reset (To Defaults)

Wait for completion

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

SON DS3 D/I

Wait for completion

Processing ... Please wait

3. TX Settings

TRNSMT

SETTINGS

Check:

Transmit Interface.....

(OC-48, OC-12, OC-3, STSX-1)

More Selections...

Clock Reference....

Looped for live circuit.
Internal if interface looped.

Check other selections.

4. Laser ON.

LASER ON

SWITCH MATRIX

Check Switch Matrix.

5. Restart SPE, DS3.

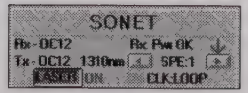
RUN STOP

Run/Stop Menu

ALL

RESTART

Select SPE under test.



Select DS3 processor.

DS3

6. Check Results

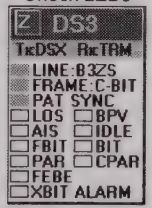
RESULTS

TROUBLE SCAN

(If looped - the screen should display)

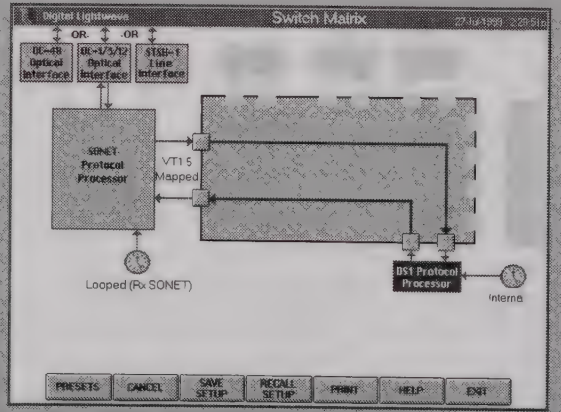
NO TROUBLE

Check LEDs

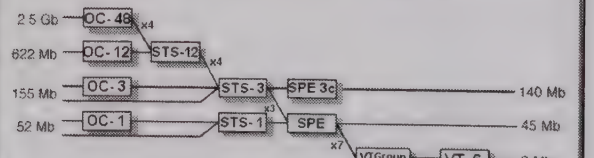


DigitalLightwave
15560 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

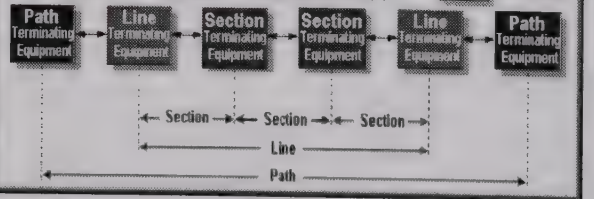
This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



SONET MULTIPLEXING HIERARCHY



SONET SYSTEM HIERARCHY



SONET | **VT 1.5 (DS1) Mapped** | Looped | Looped | Function | 75-to-120 Ohm

Quick Setup

1. Reset to defaults.

SONET
(OC-48, OC-12, OC-3, STS1)

SETTINGS

MISC

Reset (To Defaults)

Wait for completion

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

SON DS1 D/I

Wait for completion

Processing ... Please wait

3. TX Settings

TRNSMT

SETTINGS

Check:

Transmit Interface....

(OC-48, OC-12, OC-3, OC-1 STSX-1)

More Selections...

Clock Reference....

Looped for live circuit.
Internal if interface looped.

Check other selections.

4. Laser ON.

LASER ON

SWITCH MATRIX

Check Switch Matrix

5. Restart SPE, DS1.

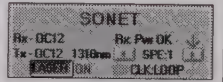
RUN STOP

Run/Stop Menu

ALL

RESTART

Select SPE under test.



DS1

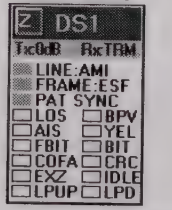
6. Check Results

RESULTS

TROUBLE SCAN

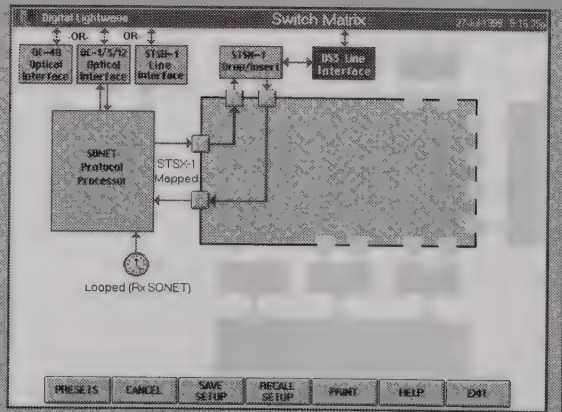
(If Looped -The screen should display)
NO TROUBLE

Check LEDs

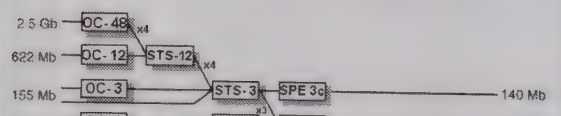


Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

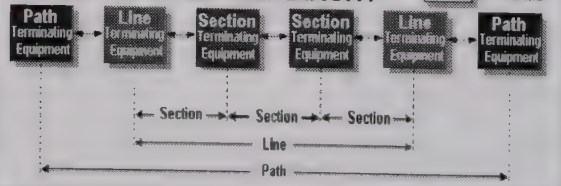
This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



SONET MULTIPLEXING HIERARCHY



SONET SYSTEM HIERARCHY



SONET | **STS-1** | **Mapped** | Looped | Looped | Function | 75-to-120 Ohm

Quick Setup

1. Reset to defaults.

SONET
(OC-48, OC-12, OC-3, STS1)

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

SON DS3 D/I

Wait for completion.

Processing ... Please wait

3. TX Settings

TRNSMT

SETTINGS

Check:

Transmit Interface. ..

(OC-48, OC-12, OC-3, OC-1 STSX-1)

Mapping....STSX-1 Drop

More Selections...

Clock Reference....

Looped for live circuit.
Internal if interface looped.

Check other selections.

4. Laser ON.

LASER ON

SWITCH MATRIX

Check Switch Matrix.

5. Restart processor.

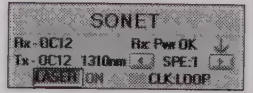
RUN STOP

Run/Stop Menu

SONET

RESTART

Select SPE under test.



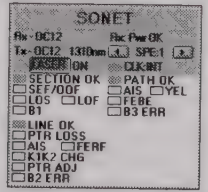
6. Check Results.

RESULTS

TROUBLE SCAN

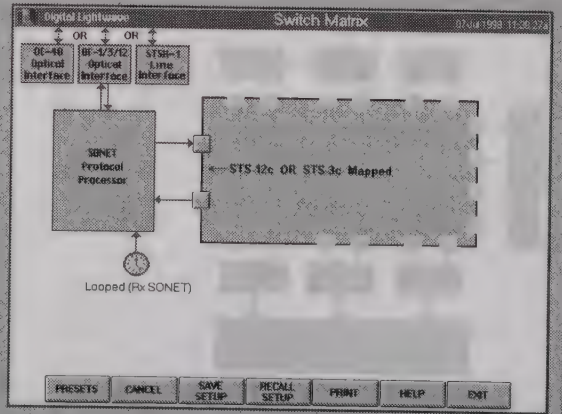
The screen displays:
NO TROUBLE

Check LEDs.

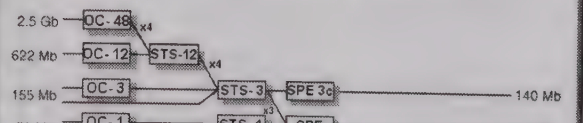


Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

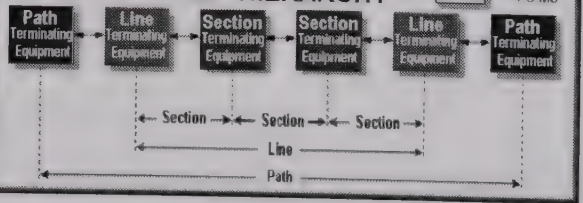
This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



SONET MULTIPLEXING HIERARCHY



SONET SYSTEM HIERARCHY



1. Set to defaults.

SONET
(OC-12/OC-3)

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

SON DS3 D/I

Wait for completion.

Processing ... Please wait

3. TX Settings

TRNSMT

SETTINGS

Transmit Interface.....OC-3

Mapping..... STS-3c/Pattern

-or-

Transmit Interface OC-12

Mapping...

STS-3c/pattern or STS-12c/pattern

Clock Reference....

Looped for live circuit.
Internal if interface looped.

Check other selections.

4. Laser ON

LASER ON

SWITCH MATRIX

Check Switch Matrix.

5. Restart processor.

RUN STOP

Run/Stop Menu

SONET

RESTART

6. Check Results

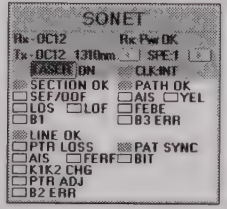
RESULTS

TROUBLE SCAN

(The screen should display.)

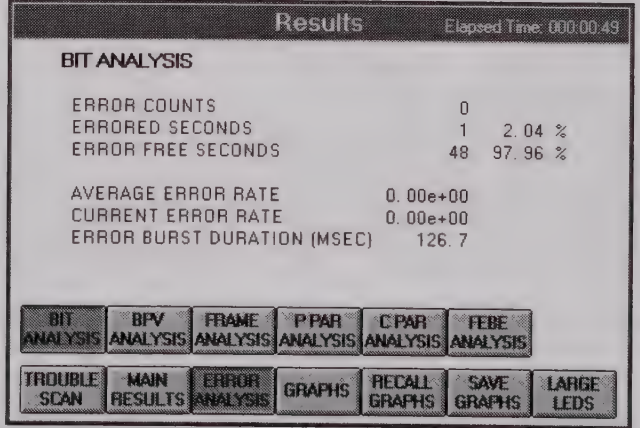
NO TROUBLE

Check LEDs



DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Error Burst Duration

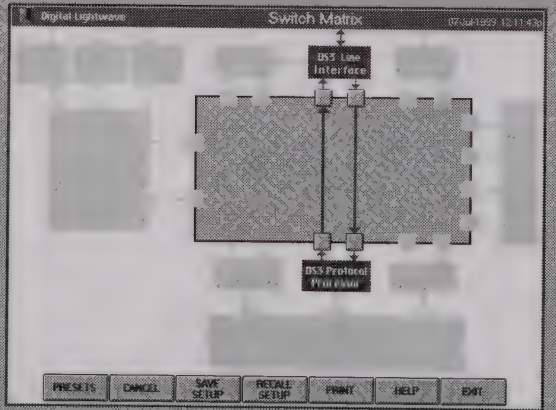


Note: This measurement can only be performed with SONET mapped to DS3.

1. Reset to defaults.	2. Map to DS3.	3. TX Settings	4. Laser ON.	5. DS3 Error Analysis	6. Error Burst Duration (EBD)
SONET **(OC12 / OC3 / STS1)** **SETTINGS** **MISC** Reset (To Defaults) Wait for completion. Processing ... Please wait **Additional Info**	**PRESETS** SON DS3 D/I Wait for completion. Processing ... Please wait	**TRNSMT** **SETTINGS** Check: Transmit Interface.... (OC-12 /OC-3 /STS1) More Selections... Clock Reference.... **Looped** for live circuit. **Internal** if interface looped. Check other selections.	LASER ON **SWITCH MATRIX** Check Switch Matrix.	Select DS3 processor. **DS3** **RESULTS** **ERROR ANALYSIS** **BIT ANALYSIS**	**RUN STOP** Run/Stop Menu **ALL** **RESTART** Once the ASA 312 is reporting no errors, perform the Switch to Protect test on the SONET circuit. Next, check the following value: ERROR BURST DURATION (MSEC)

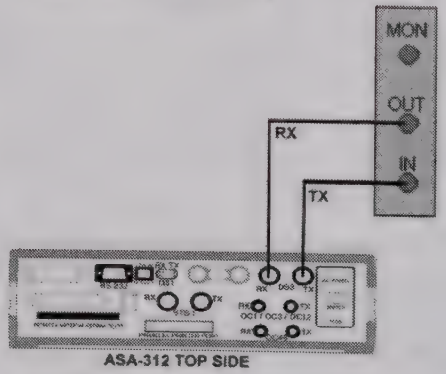
Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



External Connections

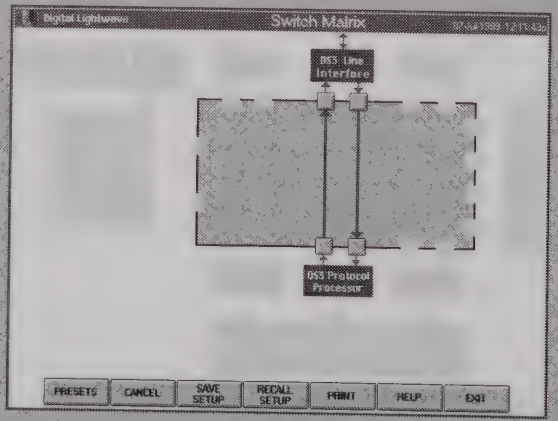
DS3 Intrusive Testing

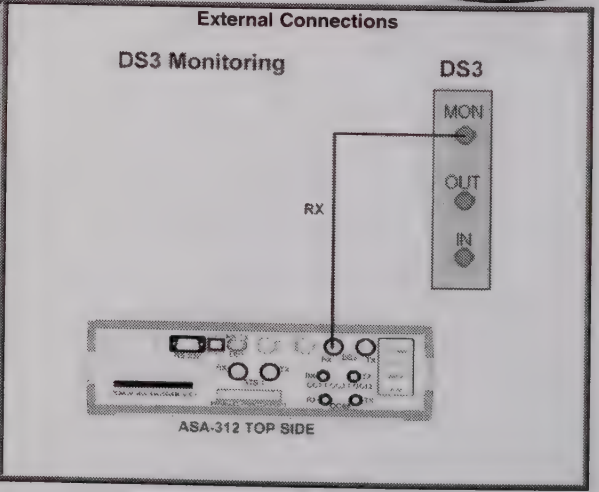


1. Reset to defaults.	2. Select Preset.	3. TX Settings	4. Restart processor.	5. Check Results.
DS3 SETTINGS MISC Reset (To Defaults) (Wait for completion) Processing ... Please wait 1 Additional Info	PRESETS DS3 Processor Wait for completion. Processing ... Please wait SWITCH MATRIX Check Switch Matrix.	TRNSMT SETTINGS Framing..... Pattern.... Check other selections.	RUN STOP Run/Stop Menu DS3 RESTART	RESULTS TROUBLE SCAN If looped, the screen should display: No Trouble. Check LEDs. DS3 TxDSX RxTRM LINE:B3ZS FRAME:C-BIT PAT SYNC LOS BPV AIS IDLE FBIT BIT PAR CPAR FEBE XBIT ALARM

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.





1. Reset to defaults.

DS3

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

DS3 Processor

Wait for completion.

Processing ... Please wait

SWITCH MATRIX

Check Switch Matrix.

3. Auto Configuration

AUTO CONFIG

Auto Configuration

DS3

Wait for completion.

Processing ... Please wait

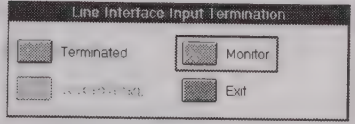
4. Check Receive settings.

RECEIVE

SETTINGS

DS3 Line Interface Functions

Line Interface Input Termination..



Check:

DS3 Protocol Processor Functions

5. Check Signal Status.

SIGNAL STATUS

Check -Levels

Peak

positive and negative voltage range:

± 0.31 Vp to ±1.2 Vp

Monitor

-15 to –26 dB

relative to DSX3 w/EQ

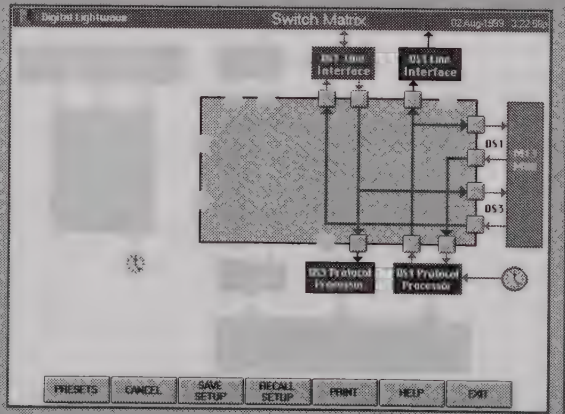
Frequency

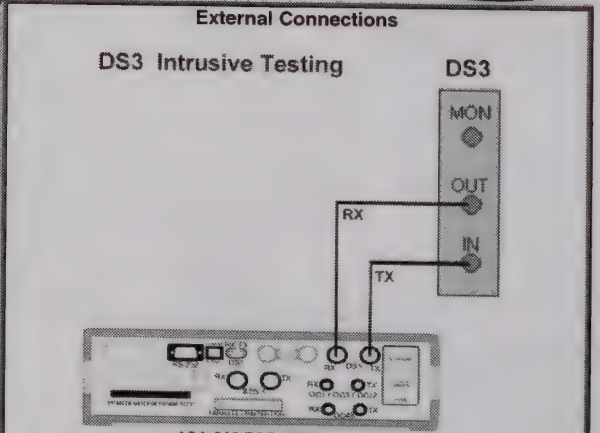
Range:

44.736 Mhz, ±200 ppm

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.





1. Reset to defaults.

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

M13 DS1

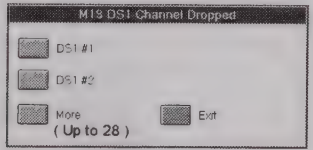
Wait for completion.

Processing ... Please wait

Check the Switch Matrix.

3. Select Dropped DS1.

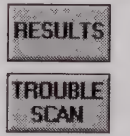
M13 DS1 Channel Dropped...



4. Select DS1 processor.

The dropped channel can now be selected using the M13 channel selector buttons.

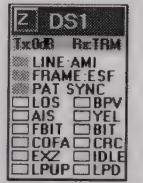
5. Check Results.



If Looped, the screen should display:

NO TROUBLE

Check LEDs.



DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

FEAC Codes

Transmit Elapsed Time: 001:42:51

TX Burst cycle.....1
TX FEAC Type.....Alarm/Status
TX Alarm/Status code.....DS3 Eqpt Fail SA

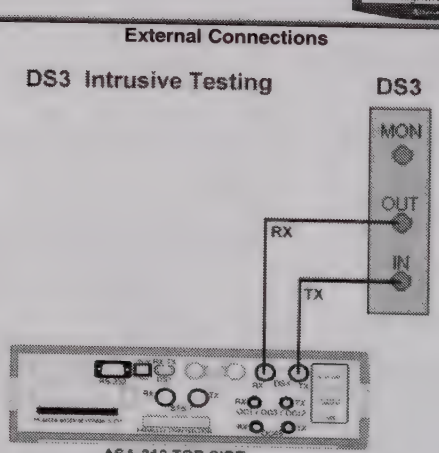
Last Rx Alarm/Status code .....DS3 Eqpt Fail SA (011001)
Seconds ago 6175
Last Rx Loopback Activate.....DS3 Line (011011)
Seconds ago 6175

BURST | CONT TRANSMIT | OFF

SETTINGS | M13 MUX | ERRORS ALARMS | FEAC CODES

External Connections

DS3 Intrusive Testing



ASA-312 TOP SIDE

1. Setup

DS3

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of DS3 testing.

Additional Info

2. Transmit Code Settings

TRNSMT

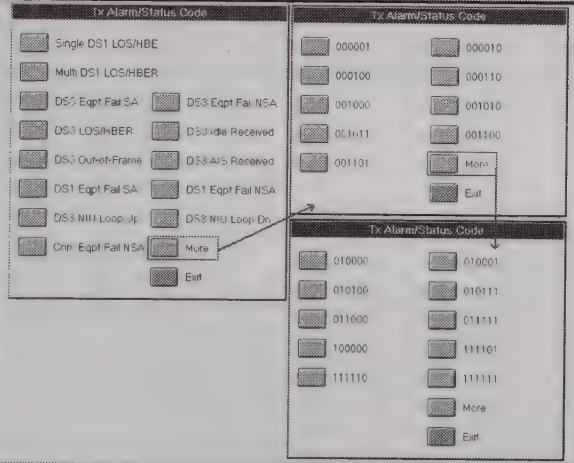
FEAC CODES

TX Burst cycle.....

(Value is 1 though 16.)

TX Alarm/Status code...

3. Code Types



4. Send Code

BURST

-Or-

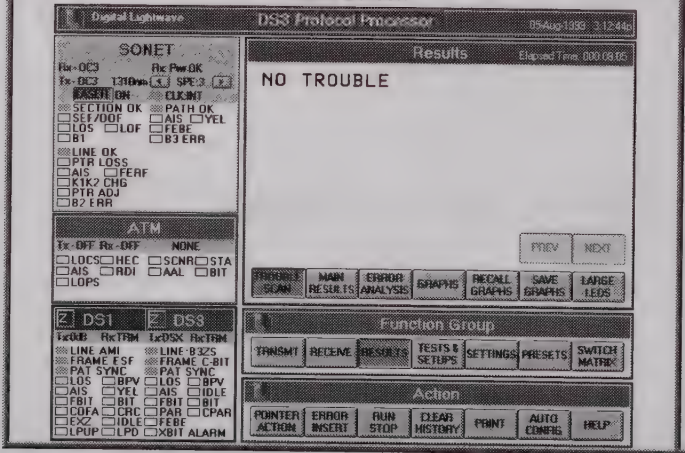
CONT TRNSMIT

To stop:

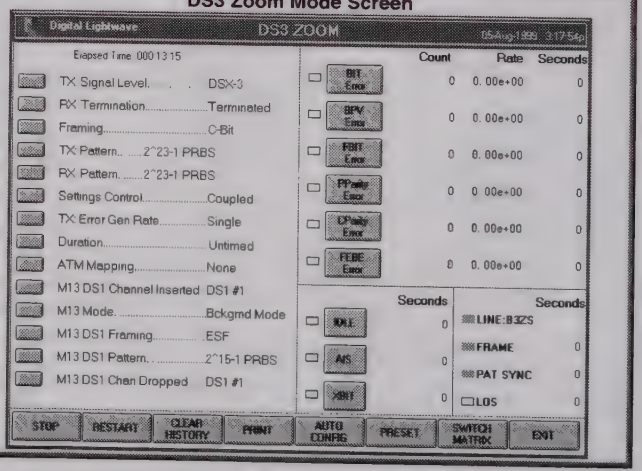
OFF

DigitalLightwave
15560 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Basic Screen



DS3 Zoom Mode Screen



1. Notes

Minimum software version 3.7.11 required.

Zoom Mode combines several functions into one screen:

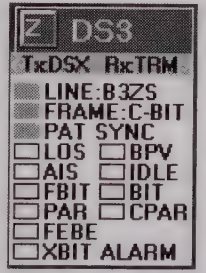
- Transmit & Receive Settings Control
- Transmit & Receive Patterns
- Transmit Error Rate
- Test Time Duration
- Mapping
- Error & Alarm Insertion
- LED Subset

Links to:

- Stop/start Processor
- Clear History
- Printing
- Auto Configuration
- Presets
- Switch Matrix

Additional Info

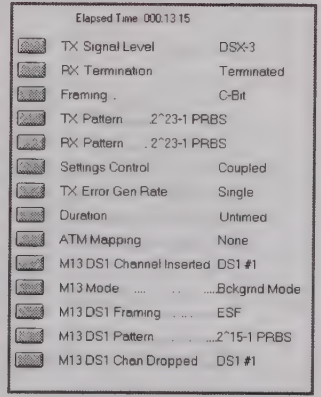
2. Enter Zoom mode.



Press the Z button located on the banner.

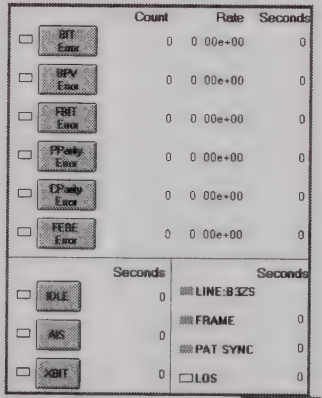
3. Left Side

These buttons allow Setting changes.


Elapsed Time 000:13:15
TX Signal Level DSX-3
RX Termination Terminated
Framing . C-Bit
TX Pattern .2^23-1 PRBS
RX Pattern . 2^23-1 PRBS
Settings Control Coupled
TX Error Gen Rate Single
Duration Untimed
ATM Mapping None
M13 DS1 Channel Inserted DS1 #1
M13 Mode .....Bckgrnd Mode
M13 DS1 Framing ESF
M13 DS1 Pattern .....2^15-1 PRBS
M13 DS1 Chan Dropped DS1 #1

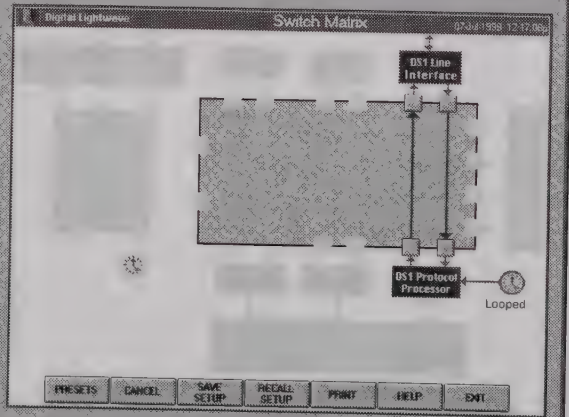
4. Right Side

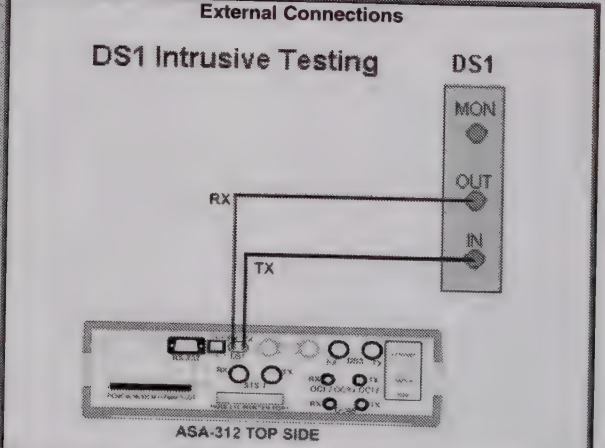
These buttons induce Errors and Alarms.



DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.





1. Reset to defaults.

DS1

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

DS1 Processor

Wait for completion.

Processing ... Please wait

SWITCH MATRIX

Check the Switch Matrix.

3. TX Settings

TRNSMT

SETTINGS

Line Code....

Clock Reference....

Framing....

Pattern....

Check other selections.

4. Restart processor.

RUN STOP

Run/Stop Menu

DS1

RESTART

5. Check Results.

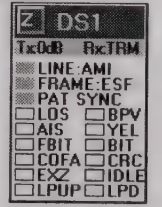
RESULTS

TROUBLE SCAN

If Looped, the screen should display:

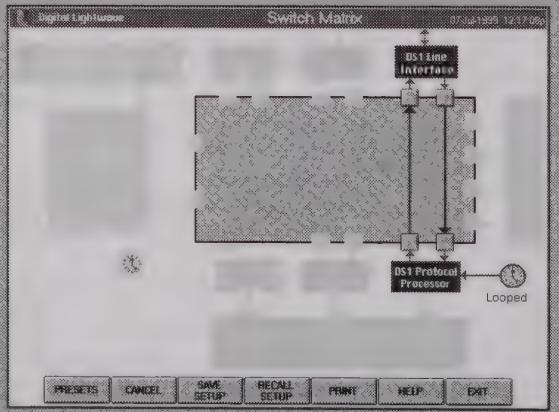
NO TROUBLE

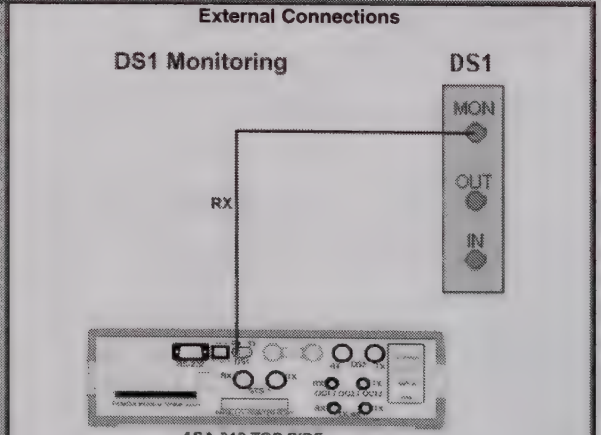
Check LEDs:



Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.





1. Reset to defaults.

DS1

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset.

PRESETS

DS1 Processor

Wait for completion.

Processing ... Please wait

SWITCH MATRIX

Check the Switch Matrix.

3. Auto Configuration

AUTO CONFIG

Auto Configuration

DS1

Wait for completion.

Processing ... Please wait

4. Check Receive settings.

RECEIVE

SETTINGS

Check:

DS1 Line Interface Functions

DS1 Protocol Processor Functions

5. Check Signal Status.

SIGNAL STATUS

Check Levels

Peak

positive and negative voltage range

±0.1Vp to ±7Vp

Monitor

0 to -36 dBdsx

16.532to -19.468 dBm

Frequency

Range:

1.544 MHz, ±200ppm

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Loop Codes

Transmit Elapsed Time: 003:01:24

- Loopback Type.....Out-Of-Band
- Loopback Code.....Line Loopback
- Auto Response.....OFF
- Tester Line Looped.....Down
- Tester Payload Looped.....Down
- Maintenance Control Codes

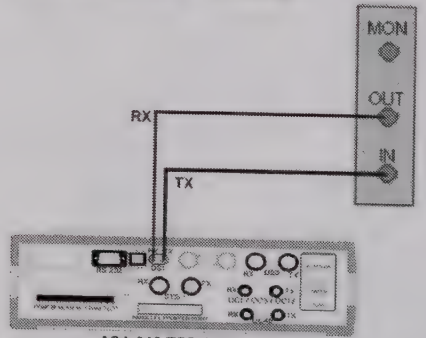
Loopback	Loopup code	Loopdown code
Line Loopback	00001110 11111111	00111000 11111111

SEND LOOP UP | SEND LOOP DN

SETTINGS | ERRORS ALARMS | LOOP CODES

External Connections

DS1 Intrusive Testing



ASA-312 TOP SIDE

1. Setup

DS1

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of DS1 testing.

Additional Info

2. Select

TRNSMT

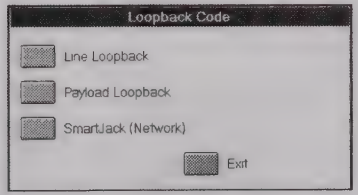
LOOP CODES

3. Loop Code choices for Out of Band.

Loopback Type...

(Out of Band)

Loopback Code....

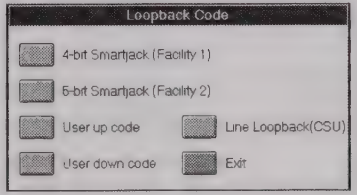


4. Loop Code choices for In Band.

Loopback Type...

(In Band)

Loopback Code....



5. Send the Loop Code.

SEND LOOP UP

The screen will briefly show:

Sending Loop Up Code..

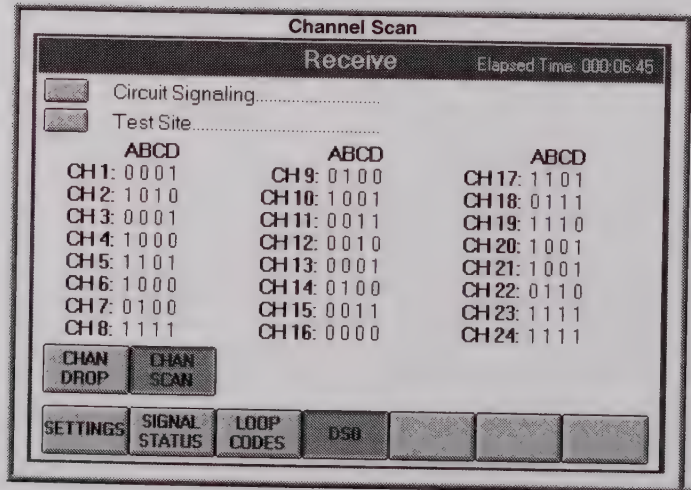
To clear a loop:

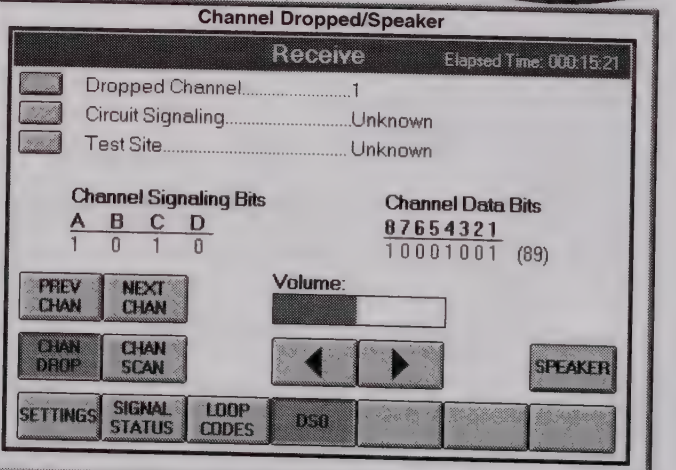
SEND LOOP DN

The screen will briefly display:

Sending Loop Down Code..

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com


Channel Scan
Receive
Elapsed Time: 000:06:45
Circuit Signaling.....
Test Site.....
ABCD
CH 1: 0 0 0 1
CH 2: 1 0 1 0
CH 3: 0 0 0 1
CH 4: 1 0 0 0
CH 5: 1 1 0 1
CH 6: 1 0 0 0
CH 7: 0 1 0 0
CH 8: 1 1 1 1
ABCD
CH 9: 0 1 0 0
CH 10: 1 0 0 1
CH 11: 0 0 1 1
CH 12: 0 0 1 0
CH 13: 0 0 0 1
CH 14: 0 1 0 0
CH 15: 0 0 1 1
CH 16: 0 0 0 0
ABCD
CH 17: 1 1 0 1
CH 18: 0 1 1 1
CH 19: 1 1 1 0
CH 20: 1 0 0 1
CH 21: 1 0 0 1
CH 22: 0 1 1 0
CH 23: 1 1 1 1
CH 24: 1 1 1 1
CHAN DROP
CHAN SCAN
SETTINGS
SIGNAL STATUS
LOOP CODES
DS0



1. Setup

DS1

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of DS1 testing.

Additional Info

2. Press

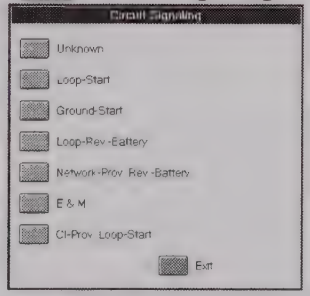
RECEIVE

DS0

CHAN SCAN

3. Channel Scan

Circuit Signaling....



Test Site.....

Customer ← Network
Network ← Customer
Unknown

4. Channel Dropped

CHAN DROP

PREV CHAN | NEXT CHAN

Channel Signaling Bits				Channel Data Bits	
A	B	C	D	87654321	
1	0	1	0	10111110	(BE)

5. Speaker

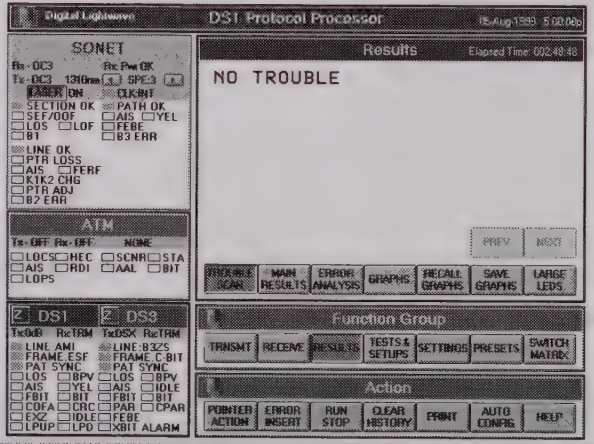
SPEAKER

Volume:

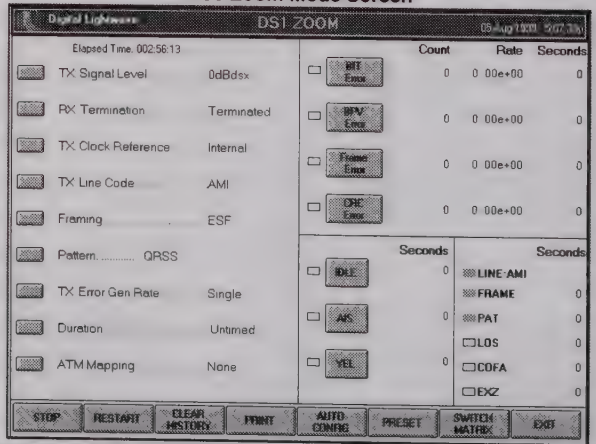
Note: If a test pattern is present on the channel, a tone may be heard depending on the pattern.

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Basic Screen



DS3 Zoom Mode Screen



1. Notes

Minimum Software version 3.7.11 required.

Zoom Mode combines several functions into one screen:

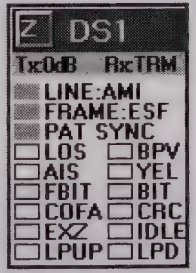
- Transmit & Receive Settings Control
- Transmit & Receive Patterns
- Transmit Error Rate
- Test Time Duration
- Mapping
- Error & Alarm Insertion
- LED Subset

Links to:

- Stop/start Processor
- Clear History
- Printing
- Auto Configuration
- Presets
- Switch Matrix

Additional Info

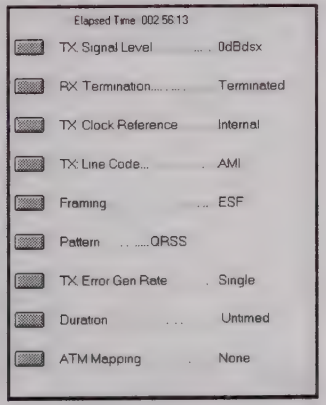
2. Enter Zoom mode.



Press the Z button located on the banner.

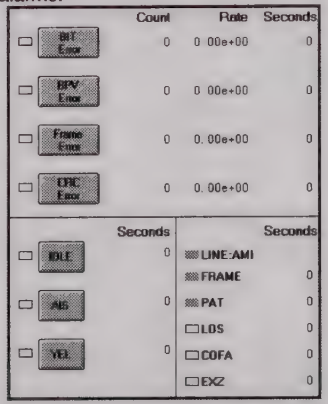
3. Left Side

These buttons allow Setting changes.

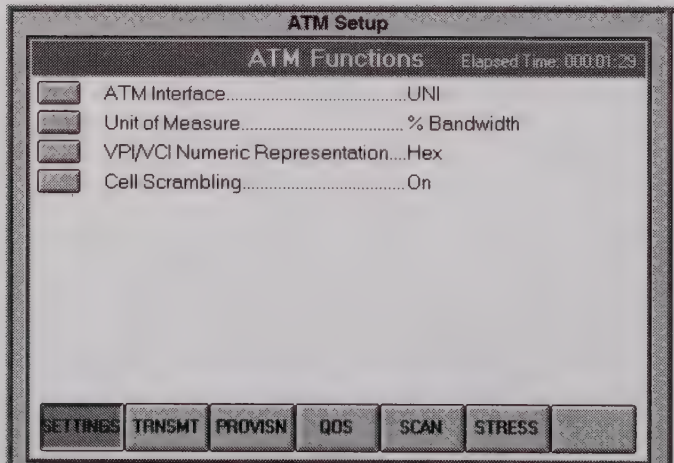


4. Right Side

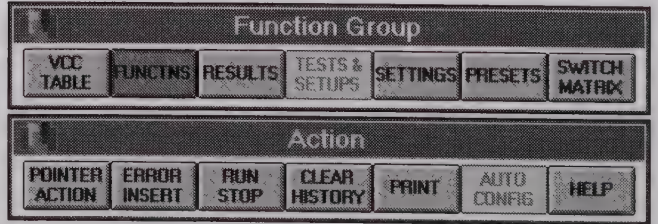
These buttons induce errors and alarms.



Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



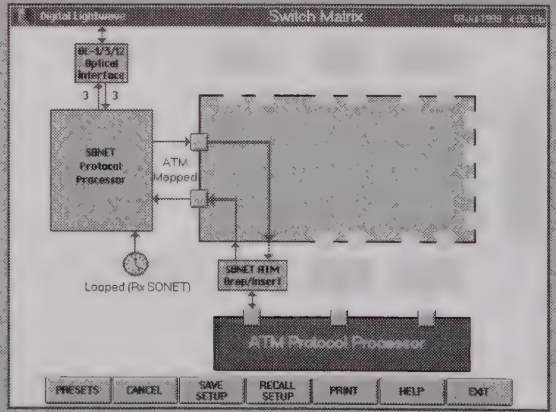
Note: The image to the left displays the defaulted values typical for most testing scenarios.



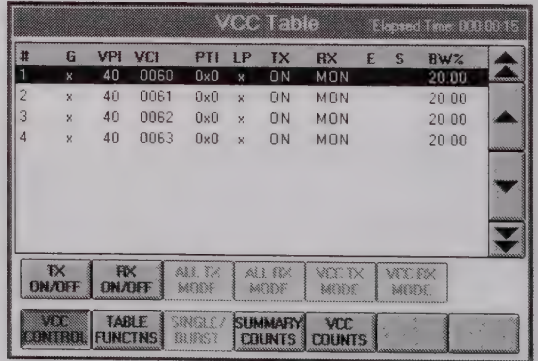
1. Select ATM Proc.	2. Function Settings	3. Select	4. Select
ATM **Note:** This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing. See other ATM instructional cards for specific test scenarios. **Additional Info**	FUNCTNS SETTINGS	ATM Interface.... Unit of Measure.... **ATM Unit of Measure** Cells/Second Kb/sec % Bandwidth Mb/sec Exit	VPI/VCI Numeric Representation... **ATM Unit of Measure** VPI/VCI Hex VPI/VCI Decimal Exit Cell Scrambling.... **ATM Cell Scramble/Descramble** Scramble On Scramble Off Exit

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



Example VCC Table


VCC Table
Elapsed Time: 00:00:15
G VPI VCI PTI LP TX RX E S BW%
1 x 40 0060 0x0 x ON MON 20.00
2 x 40 0061 0x0 x ON MON 20.00
3 x 40 0062 0x0 x ON MON 20.00
4 x 40 0063 0x0 x ON MON 20.00
TX ON/OFF
RX ON/OFF
ALL TX MODE
ALL RX MODE
VCC TX MODE
VCC RX MODE
VCC CONTROL
TABLE FUNCTNS
SINGLE / BURST
SUMMARY COUNTS
VCC COUNTS

1. Reset to defaults.

ATM

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Additional Info

2. Select Preset

PRESETS

ATM/STS-3c

Wait for completion.

Processing ... Please wait

SWITCH MATRIX

Check Switch Matrix.

3. Function Settings

FUNCTNS

SETTINGS

ATM Interface...

Unit of Measure...

Check other selections.

4. VCC Table

VCC TABLE

TABLE FUNCTNS

Add VCCs.

See the *ADD/Edit VCCs* section.

5. VCC Control

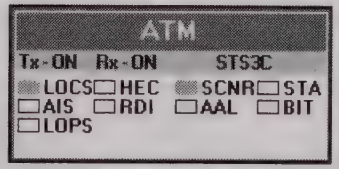
VCC CONTROL

Turn TX and RX on.

TX ON/OFF

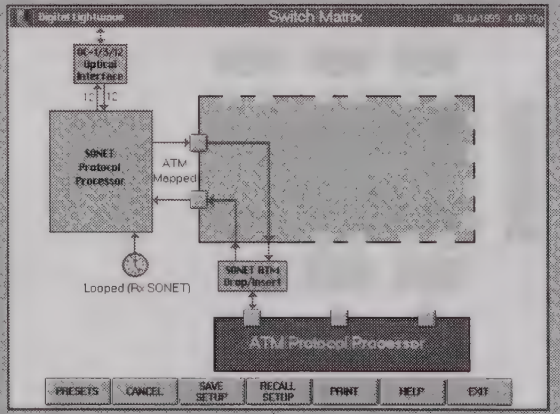
RX ON/OFF

6. Check Errors & Bandwidth

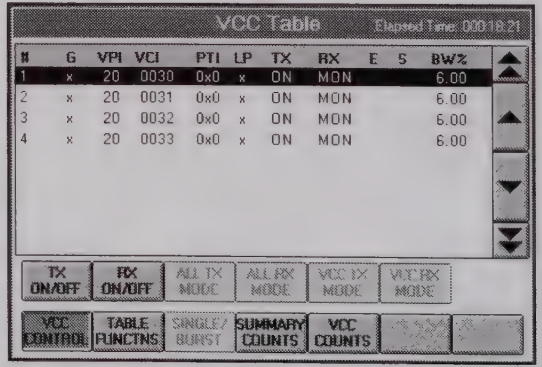


Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.

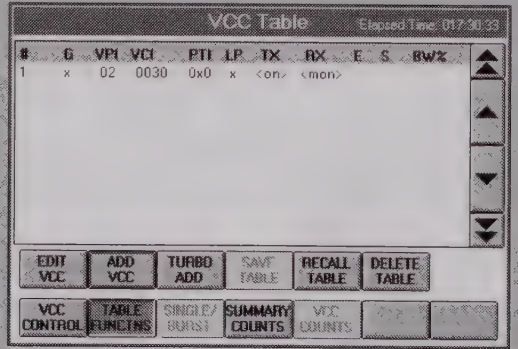


Example VCC Table

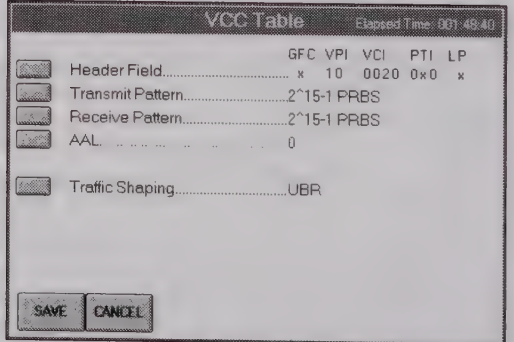

VCC Table
Elapsed Time: 000:18:21
G VPI VCI PTI LP TX RX E S BW%
1 x 20 0030 0x0 x ON MON 6.00
2 x 20 0031 0x0 x ON MON 6.00
3 x 20 0032 0x0 x ON MON 6.00
4 x 20 0033 0x0 x ON MON 6.00
TX ON/OFF
RX ON/OFF
ALL TX MODE
ALL RX MODE
VCC TX MODE
VCC RX MODE
VCC CONTROL
TABLE FUNCTNS
SINGLE/ BURST
SUMMARY COUNTS
VCC COUNTS

1. Reset to defaults.	2. Select Preset.	3. Function Settings	4. VCC Table	5. VCC Control	6. Check Errors & Bandwidth.
ATM SETTINGS MISC Reset (To Defaults) Wait for completion. Processing ... Please wait Additional Info	PRESETS ATM/STS-12c Wait for completion. Processing ... Please wait	FUNCTNS SETTINGS ATM Interface... Unit of Measure... Check other selections.	VCC TABLE TABLE FUNCTNS Add VCCs. See the *Add/Edit VCCs* section.	VCC CONTROL Turn TX and RX on. TX ON/OFF RX ON/OFF	ATM Tx-ON Rx-ON STS12C LOCS HEC SCNR STA AIS RDI AAL BIT LOPS OVFL VCC Table BW% 6.00

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



Example VCC Entry



Important Note: Cell Transmit (TX) and Receive (RX) must be turned off before VCC adding or editing is allowed.

1. Select ATM Proc.

ATM

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing. See the other *ATM* sections for specific test scenarios.

Additional Info

2. Select

VCC TABLE

TABLE FUNCTNS

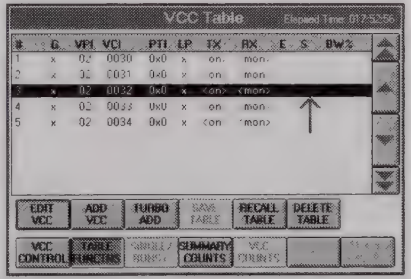
ADD VCC

-Or-

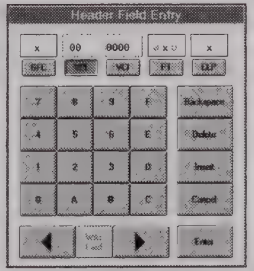
EDIT VCC

3. To edit an existing VCC

When editing an existing VCC, first highlight the target VCC, and then press **EDIT VCC**.



4. Enter VPI and VCI.



After entering the numbers, press **Enter**.

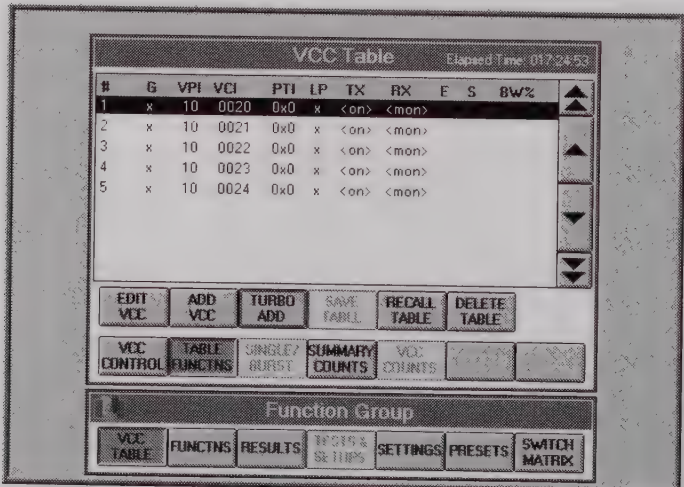
5. Check each choice.

- Transmit Pattern.....
- Receive Pattern
- AAL.....
- AAL1 CSI Bit (0 or 1)....
- AAL5 PDU Length
- Traffic Shaping.....
- Peak Cell Rate
- Sustained Cell Rate..

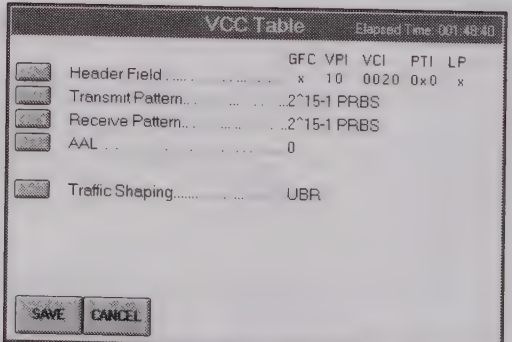
SAVE

This will create one VCC.

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



Example VCC Entry


VCC Table
Elapsed Time: 001:48:40
GFC VPI VCI PTI LP
Header Field . . . . x 10 0020 0x0 x
Transmit Pattern . . . 2^15-1 PRBS
Receive Pattern . . . 2^15-1 PRBS
AAL . . . 0
Traffic Shaping . . . UBR
SAVE
CANCEL

Important Note: Cell Transmit (TX) and Receive (RX) must be turned off before VCC adding or editing is allowed.

1. Select ATM Proc.

ATM

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing. See other *ATM* sections for specific test scenarios.

Additional Info

2. Select

VCC TABLE

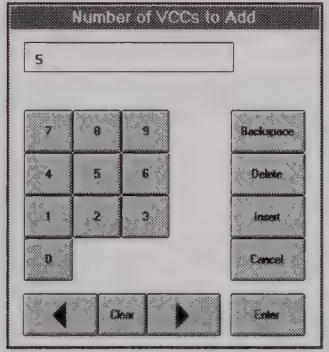
TABLE FUNCTNS

TURBO ADD

3. Enter VPI and VCI.

After entering the numbers, press **Enter**.

4. Enter the number of VCCs.



After entering a number, press **Enter**.

5. Check each choice.

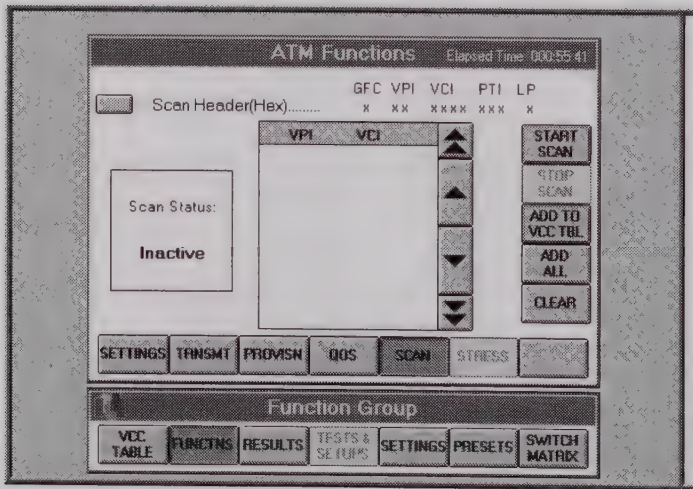
- Transmit Pattern.....
- Receive Pattern.....
- AAL.....
- AAL1 CSI Bit (0 or 1)....
- AAL5 PDU Length.....
- Traffic Shaping.....
- Peak Cell Rate.....
- Sustained Cell Rate....

These selections will apply to all VCCs for this Turbo Add function.

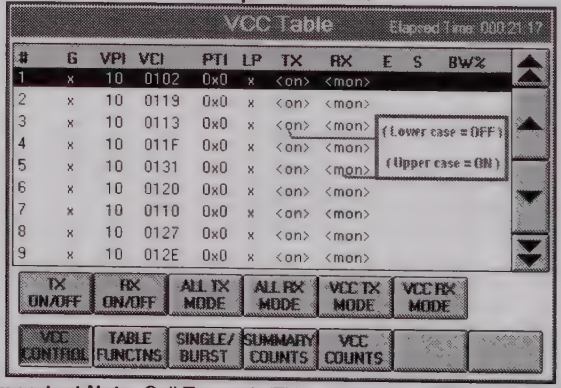
SAVE

All VCCs are created.

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



Example VCC Table



Important Note: Cell Transmit (TX) and Receive (RX) must be turned off before VCC adding or editing is allowed.

1. Select ATM Proc.

ATM

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing, and is connected to a live circuit containing cell traffic.

See the other ATM sections for specific test scenarios.

Additional Info

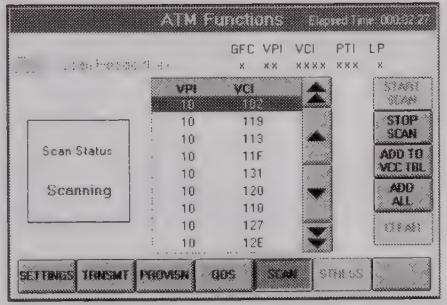
2. Select

FUNCTNS

SCAN

START SCAN

3. Add one or all VCCs to the table.



STOP SCAN

ADD TO VCC TBL - Or - ADD ALL

4. Turn on VCCs.

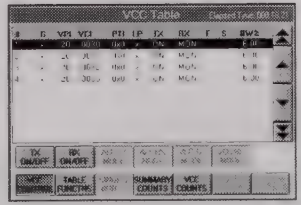
If you wish to re-transmit the scanned VCCs and monitor them, use this function.

VCC CONTROL

Turn TX and RX on.

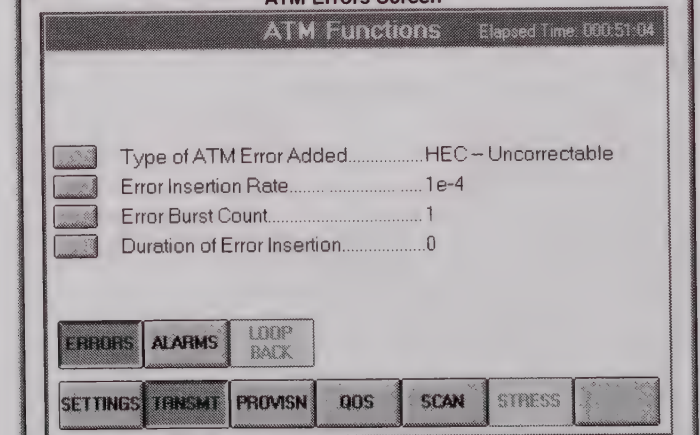
TX ON/OFF

RX ON/OFF

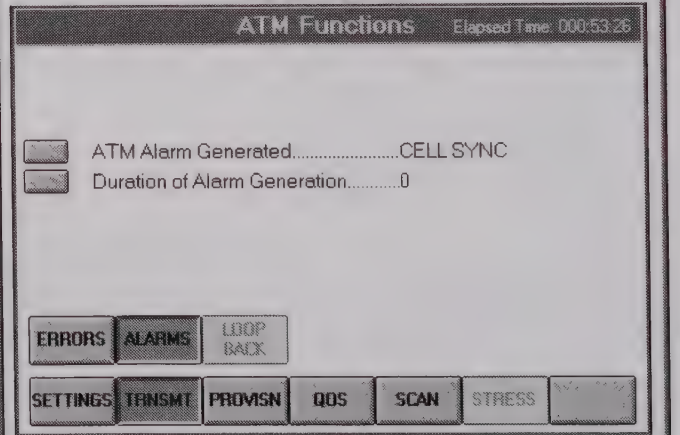


DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.dlightwave.com

ATM Errors Screen

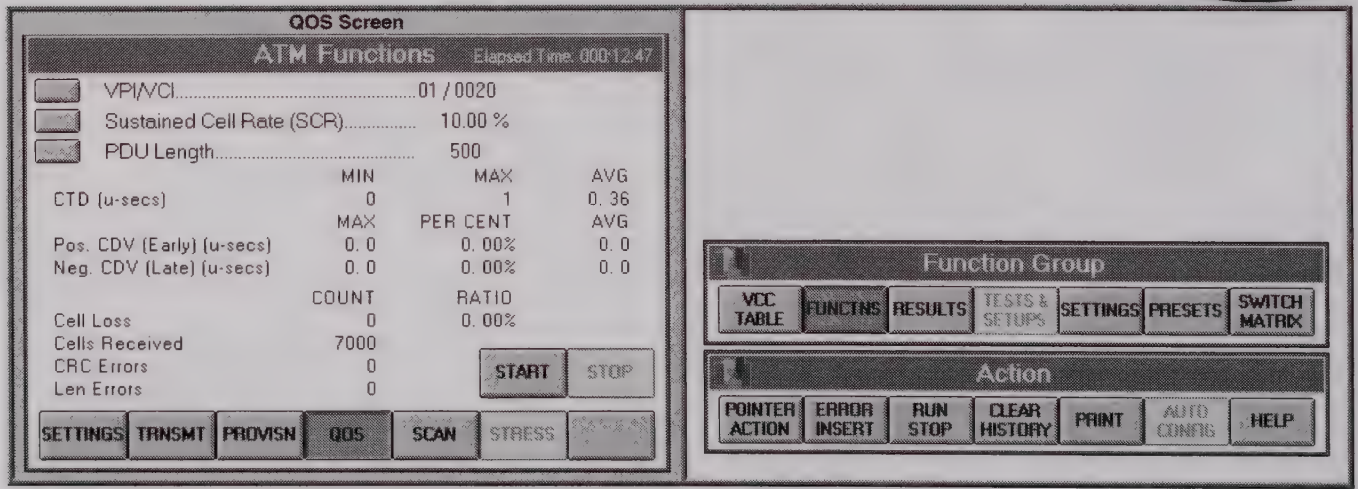


ATM Alarms Screen



1. Select ATM Proc.	2. Transmit Errors - Select	3. Transmit Alarms - Select
ATM FUNCTNS TRNSMT **Note:** This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing, is connected to a live circuit (or looped back), and is currently sending and receiving VCCs. See other ATM instructional cards for specific test scenarios. **Additional Info**	ERRORS Type of ATM Error Added... HEC -Correctable HEC -Uncorrectable Bit Error Insertion Rate..... Error Burst Count..... (Values 1 though 10.) Duration of Error Insertion... Use for single error injection. ERROR INSERT	ALARMS ATM Alarm Generated..... Duration of Alarm Generation...

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com



1. Select ATM Proc.

ATM

Note: This instruction card assumes that the ASA 312 has previously been configured for some type of ATM testing, and is connected to a live circuit containing cell traffic.

See the other *ATM* sections for specific test scenarios.

Additional Info

2. Select

FUNCTNS

QOS

VPI/VCI.....

Sustained Cell Rate (SCR)...

(Maximum setting is 10%.)

PDU Length.....

3. Start the test.

To start a test (this will reset counts and begin a new test):

START STOP

TEST IN PROGRESS

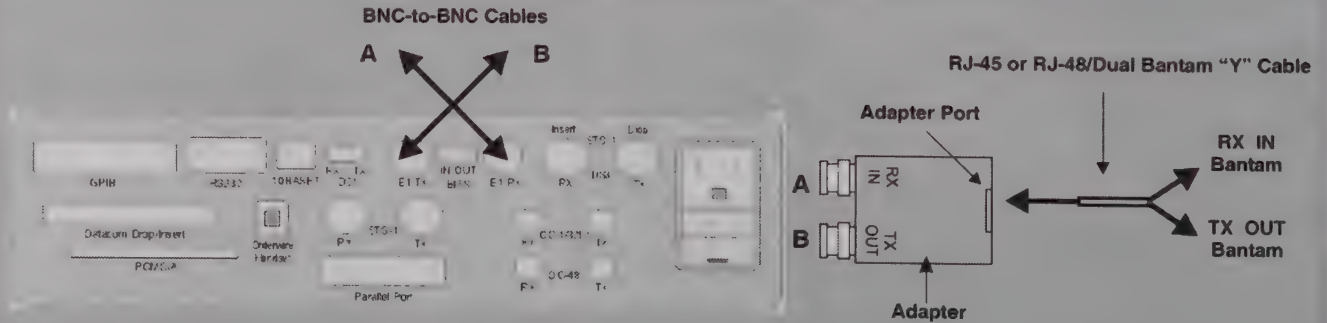
(Displays in the upper-right corner.)

To stop a test (results will remain displayed):

START STOP

DigitalLightwave
15560 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

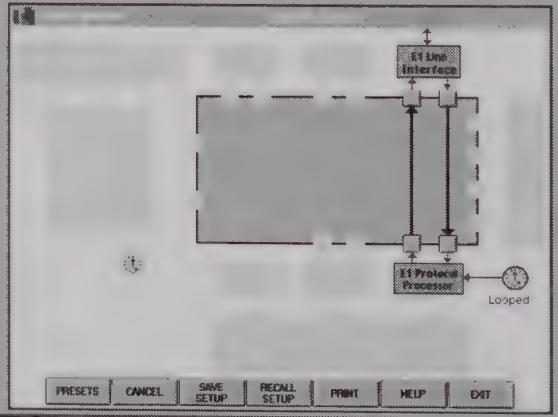
75-to-120 Ohm Adapter Interface Connection to E1



1. Preparing for 75-to-120 Ohm adapter Interface operation:	2. Connect the components as follows.	3. Turn on the ASA 312.
You will need the following components for E1 75-to-120 Ohm adapter interface operation: • 75-ohm to 120-ohm adapter interface for ASA 312 conversion of balanced input to unbalanced input using E1 applications • RJ-45 or RJ-48/Dual Bantam "Y" cable • Balun cable or equivalent • Two one-inch BNC-to-BNC cables with connectors at both ends **Additional Info**	• Connect one side of the BNC-to-BNC cables to the E1 TX and E1 RX ports located on the ASA 312 connector panel. • Connect the other side of the BNC to BNC cables to the RX In and TX Out ports located on the adapter interface. Ensure that each BNC connector is matched to its corresponding RX and TX port. • Connect the adapter interface to the RJ-45 or RJ-48/Dual Bantam "Y" cable. • Connect the RX In .and TX Out Bantam connectors to the E1 facility.	• Once all cables are connected, turn on the ASA 312. When the main screen appears, select the DS1 protocol processor. • From the DS1 protocol processor TX or RX Settings screen, press the E1 button located in the top right corner of the screen. • The E1 protocol processor main screen appears, and the ASA 312 is in E1 mode. **Card - 35**

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right.
On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



1. Reset to defaults.

E1

SETTINGS

MISC

Reset (To Defaults)

Wait for completion.

Processing ... Please wait

Re-enable the E1 processor.

Additional Info

2. Select Preset.

PRESETS

E1 Processor

Wait for completion.

Processing ... Please wait

SWITCH MATRIX

Check the Switch Matrix.

3. TX Settings

TRNSMT

SETTINGS

Signal Level...

Line Code....

Clock Reference....

Framing....

Pattern....

Check other selections.

4. Restart processor.

RUN STOP

Run/Stop Menu

E1

RESTART

5. Check Results.

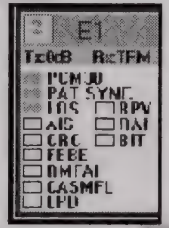
RESULTS

TROUBLE SCAN

If Looped, the screen should display:

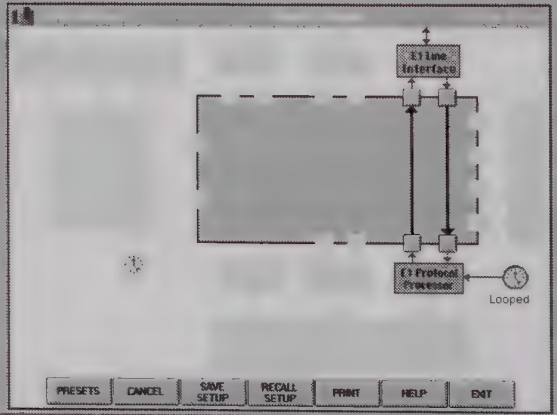
NO TROUBLE

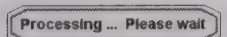
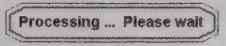
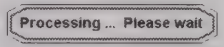
Check LEDs:



Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548 9283
www.lightwave.com

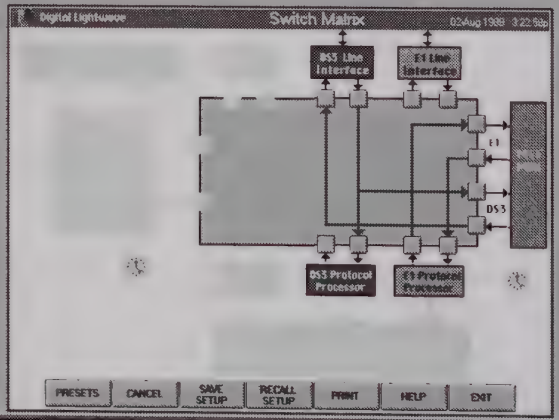
This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.

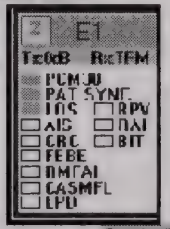


1. Reset to defaults.	2. Select Preset.	3. Auto Configuration	4. Check Receive settings.
 Reset (To Defaults) Wait for completion.  Re-enable the E1 processor. **Additional Info**	 E1 Processor Wait for completion.  **Check the Switch Matrix.**	 E1 Wait for completion. 	 Check **Framing** and **Pattern**.

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

This Switch Matrix shows only the internal connections that are required for performing the test procedure outlined on the card to the right. On the actual test set, other connections will be present; however, those connections are not required for this particular test and should be ignored.



1. Reset to defaults.	2. Select Preset.	3. Select DS3 protocol processor.	4. Select DS3 processor.	5. Check Results.
E1 SETTINGS MISC Reset (To Defaults) Wait for completion. Processing ... Please wait Re-enable the E1 protocol processor. **Additional Info**	PRESETS M13 E1 Wait for completion. Processing ... Please wait SWITCH MATRIX Check the Switch Matrix.	DS3 RECEIVE M13 MUX M13 E 1 Channel Dropped... The M13 Channel Inserted screen appears. Select from channels 1 through 21.	DS3 TRNSMT M13 MUX The M13 Channel Inserted screen appears. Select from channels 1 through 21. The M13 Bkgd E1 Payload screen appears. Select Unframed/All Zeros or Unframed/All Ones payload format.	RESULTS TROUBLE SCAN If Looped, the screen should display: NO TROUBLE Check LEDs. 

Glossary

Digital Lightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

10baseT Connector
The IEEE standard interface connector for operating Ethernet local area networks on twisted-pair cabling.
AAL ATM Adaptation layer.
An ATM LED indicating that an AAL1 SN or SNP error or a lost or mis-inserted cell occurred; or an AAL5 PDU length or CRC error occurred.
ABR (Available Bit Rate)
An ATM service type in which the ATM network makes a "best effort" to meet the transmitter's bandwidth requirements.
AIS (Alarm Indication Signal)
Also known as a Blue Alarm. A signal that replaces the normal traffic signal when a maintenance alarm indication has been activated.
Alternative Mark Inversion (AMI)
A line coding format in some transmission systems whereby successive ones (marks) are alternately inverted (sent with polarity opposite that of the preceding mark).
APS Commands (Automatic Protection Switching).
Those signals loaded in the K1 and K2 bytes that control the APS functions.
ASA 312 Asynchronous/Synchronous Analyzer.
Digital Lightwave's functionally and technologically innovative diagnostic analyzer for high-speed telecommunications.
Asynchronous Transfer Mode (ATM)
Allows multiple kinds of data, such as voice, video, and computer data services, to be transmitted at high-speed over the network.

ATM Adaptation Layer (AAL)
One of the three layers of the ATM protocol reference model. It performs segmentation and reassembly (SAR), translates higher-layer data into ATM cell payloads, and translates incoming cells into a format readable by the higher layers.
Automatic Protection Switching
The capability of a transmission system to detect a failure on a working facility, and to switch to a standby facility to recover the traffic.
B3ZS Binary 3 Zero Substitution
B8ZS (Binary 8 Zero Substitution)
BITS (Building Integrated Timing Supply)
A clock inside a building or telephone company office that acts as a central timing reference for all other clocks in the building.
BNC Connector:
Bayonet-Neill-Concelman. A bayonet-locking connector for slim coaxial cables.
BPV (Bipolar Violation)
A type of error that can occur in a digital signal transmitted over an electrical line.
C-Bit
Parity Error In a DS3 signal.
CBR (Constant Bit Rate)
A data transmission that can be represented by a non-varying or continuous stream of bits or cell payloads.
Cell ATM Layer protocol data unit (PDU).
CER Cell Error Ratio
CTD (Cell Transfer Delay)
The transit delay of an ATM cell successfully passed between two designated boundary.

Cyclic Redundancy Check (CRC)
A process used to check the integrity of a block of data.
-dBm
Power level expressed in relation to 1 milliwatt.
DCC
DataCom Channel
D4 Framing
The most common framing format for a T-1 signal.
DS-0
Digital Service, level 0. It is 64,000 bps.
DS-1
Digital Service, level 1. It is 1.544 Mbps signal rate. DS-1 is also called T-1.
DS-3
Digital Service, level 3. Equivalent of 28 DS-1 channels, and operating at 44.736 Mbps. Also called T-3.
Extended Super Frame (ESF)
T-1 framing format that provides frame synchronization.
FEAC (Far End Alarm and Control)
The alarm and control channel which transmits alarm or status conditions to the far end. The FEAC also allows control over far-end loop back conditions.
FEBE (Far End Block Error)
An alarm signal generated by a network monitoring device and sent up the line to inform other network devices that an error has been detected in the signal.
FERF (Far End Receive Failure)
A signal generated and sent upstream that informs the transmitting line terminating equipment that the receiving equipment has detected an incoming failure.
HEC Header Error Control.
Appears as an ATM LED and indicates if a correctable or uncorrectable HEC error has been received.
Line AIS (Line Alarm Indication Signal)
An alarm signal generated when an error is detected in the Line Overhead portion of the Synchronous Transport Frame.
LOCS (Loss of Cell Synchronization)
An ATM LED that indicates the loss of Cell Sync.

Looped (Signal Timing)
A method of synchronizing a circuit by taking a synchronizing clock signal from incoming dig-ital pulses.
Loss of Frame (LOF)
Loss of Pattern (LOP)
Loss of Pattern Synchronization (LOPS)
An ATM LED that indicates a loss of cell sync on any active detail channel.
Loss of Pointer (LOP)
An alarm signal generated when no valid pointer is received in eight consecutive frames, or when eight consecutive new data flags are received.
Loss of Signal (LOS)
An alarm signal generated when the data signal has an all zeros pattern lasting 55 microseconds or longer.
MBS (Maximum Burst Size)
The number of cells specified when the connection is set up. The MBS may be sent at the PCR without exceeding the SCR if the connection is idle for enough time between bursts.
NNI
Network Node Interface. The interface between two network nodes.
OOF (Out of Frame)
1. An ATM LED indicating that a receive PLCP OOF error has occurred. 2. A SONET LED indicating that an OOF error has occurred on a Section layer.
Path B3 (Error)
The B3 byte is a parity code that is in the Path Overhead section of the Synchronous Payload Envelope.
Path FEBE (Path Far End Block Error)
An alarm signal generated and sent upstream to the transmitting Path Terminating Equipment, Signaling that errors have been detected in the data block at the receiving Path Terminating Equipment.
Payload Bit
Any bit that is part of the payload of a SONET signal.
Payload Pointer
The pointer that indicates the location of the first byte of the Synchronous Payload Envelope in The STS frame.
Connection (PVC)
A logical (rather than physical) connection between endpoints established by an administrator.

DigitalLightwave
15550 Lightwave Drive
Clearwater Florida
33760
800-548-9283
www.lightwave.com

Protocol Data Unit (PDU)
A segment of data generated by a specific layer of a protocol stack; usually contains information from the next higher layer encapsulated with header and trailer data generated by the layer in question.

Pseudo-Random Bit Sequence (PRBS)
A test pattern having the properties of random data.

Pulse Code Modulation (PCM)
The most common method of encoding an analog voice signal into a digital bit stream.

Quality of Service (QOS)
Agreement that a specified user service will be provided over the network with guaranteed Qual-ity of Service parameters at an acceptable cost. These parameters define accuracy, speed, and de-pendability of a connection. These may include peak and sustainable cell rate, maximum burst size, adaptation layer type and quality of service class.

Quasi-Random Signal Source (QRSS)
A signal pattern generated for DS1 channels which is a known standard pattern and which there-fore can be exactly monitored for transmission errors.

SCNR (Selected Cells Not Received)
An ATM LED that indicates if monitor or detail channels are not receiving cells.

SCR (Sustained Cell Rate)
The average or constant traffic that the network agrees to carry with the Quality of Service spec-ified in the traffic contract. SCR is less than or equal to the Peak Cell Rate (PCR). Several time intervals are defined to fit in the Generic Cell Rate Algorithm that allow for clumping, CDV, etc. and a Maximum Burst Size (MBS).

Scrambling Used to facilitate clock recovery of the signal at the receiving end.

Section
A SONET network section span comprises the transmission medium and associated equipment between a network element and a regenerator, or two regenerators.

Switch Matrix
A unique feature of the ASA 312 that provides the user with a graphical switching fabric, pre-sented as a block diagram on the instrument display, for the routing of signals between all of the instrument's test sets.

Synchronous Optical NETwork (SONET)
A family of fiber-optic transmission rates from 51.84 Mbps (megabits/second) to 13.22 Gbps (gi-gabits/second). It defines a physical interface, optical line rates known as Optical Carrier (OC) signals, frame format and protocol for Operations. The electrical signal equivalents of the OC signals are called Synchronous Transport Signals (STS's). The base rate for SONET signals is 51.84 Mbps (OC-1 and STS-1) and higher rates are direct multiples of the base rate. (Ex-ample:OC-3 = 3 x 51.84 = 155.52 Mbps).

Synchronous Payload Envelope (SPE)
That section of the STS-N or OC-N frame that carries the data payload plus the Path Overhead.

Test Set(s)
The instrument used to perform such testing.

Touch Screen
The interactive interface screen on the ASA 312 that is touch sensitive, and that the user touches to make selections of menu items, thereby controlling the functions of the tester.

Unspecified Bit Rate(UBR)
An ATM service type in which the ATM network makes a "best effort" to meet the transmitter's bandwidth requirements.

VBR Variable Bit Rate.

VC Virtual Channel (Virtual Circuit)

VCC Virtual Channel Connections

VCI Virtual Channel Identifier The address or label of a Virtual Channel (VC).

Virtual Tributary (VT)
A subdivision of an Synchronous Payload Envelope.

RETURN SHIPPING INSTRUCTIONS

If it is necessary to return the unit, obtain a Return Material Authorization (RMA) number and Return Shipping Address by contacting Technical Support. Please enclose a letter that briefly describes the reason for returning the unit and include the following information:

- Unit Serial Number
- Customer Name and Shipping Address
- Customer Contact Name and Telephone Number
- Secondary Customer Contact Name and Telephone Number
- Customer Supplied Purchase Order Number (if applicable)

If the original shipping container (box) is available, place the unit (and letter that describes the reason for the return) into the canvas carry bag, and pack it into the original Digital Lightwave, Inc. shipping container. **Do not include personal items such as jumper cords or connectors. Digital Lightwave, Inc. will not be responsible for these items**. Use the original foam inserts to protect all six sides of the unit.

Securely seal the shipping container, and mark **FRAGILE** on the container to ensure careful handling. Include the **RMA number** on the outside of the shipping container.

If the original shipping container is not available, pack the unit (and letter that describes the reason for the return) into the canvas carry bag, and use the following general instructions to repack the unit using commercially available materials:

- Use a strong shipping container, similar to the original ASA 312 shipping box. Verify that the substitute container is rated at 350 lbs. Per square inch pressure durable.
- Make sure that the unit is satisfactorily protected by using a layer of ESD Protected short absorbing foam material. The foam padding must be 3- to 4-inches in thickness (70- to 100-mm) and applied to all six sides of the unit to provide adequate protection. Make sure that the canvas bag and unit cannot move or shift within the container.
- Securely seal the shipping container, and mark **FRAGILE** on the container to ensure careful handling.
- Include the **RMA number** on the outside of the shipping container.

Contact Technical Support for the Repair Departmentís Return Shipping Address.
When service is complete, your unit will be returned to you postage paid if the shipment is within the United States. You are responsible for paying all shipping charges, duties, taxes, and other charges for products returned to Digital Lightwave, Inc. from any location within or outside of the United States.

Trademarks

Digital Lightwave, the rectangular logo, Network Information Computer and ASA 312 are registered trademarks of Digital Lightwave, Inc. in the United States and/or in other countries. Lightwave Management; Anytime, Anywhere, AnyBit; Technology to Reach Inside the Light; Network Access Agent; NIC and NAA are trademarks of Digital Lightwave for which application has been made.

Patent Information

The ASA 312 ÆNetwork Information Computerô (NIC) described in this publication may be protected by one or more patents on file with the United States Patent Office.

Technical Support

Technical Support is available by calling toll free

1.877.929.HELP (4357) or 1.800.548.9283.

Digital Lightwave, Inc.
15550 Lightwave Drive ï Clearwater , Florida 33760 United States
T: 727.442.6677 ï F: 727.442.5660
Toll Free: 800.548.9283 or 877.275.3445
info@lightwave.com ï http://www.lightwave.com

www.manualsplus.com
1028349

Digital Lightwave®

15550 Lightwave Drive • Clearwater, FL 33760 • United States
TECHNICAL SUPPORT 877.929.4357